# SAGEM F@st™ 1500
# SAGEM F@st™ 1500WG




**Reference Manual**

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SAGEM

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# Warning



Warning icon, used in this guide.



Information icon, used in this guide.

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# 1. Introduction

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Congratulations on your purchase of the SAGEM F@st$^{TM}$ 1500WG IEEE 802.11g ADSL Router, hereafter referred to as the “ SAGEM F@st$^{TM}$ 1500WG ADSL Router”. We are proud to provide you with a powerful yet simple communication device for connecting your local area network (LAN) to the Internet. For those who want to surf the Internet in the most secure way, this router provides a convenient and powerful solution.

## 1.1 About the SAGEM F@st$^{TM}$ 1500WG ADSL Router

The ADSL Router provides Internet access to multiple users by sharing a single-user account. Support is provided for both wired and wireless devices. New technology provides wireless security via Wired Equivalent Privacy (WEP) encryption and MAC address filtering. It is simple to configure and can be up and running in minutes.

## 1.2 Features and Benefits

- Internet connection to an ADSL modem via an RJ-11 ADSL port.
- Local network connection via four 10/100 Mbps Ethernet ports.
- On-board IEEE 802.11g wireless network adapter.
- DHCP for dynamic IP configuration, and DNS for domain name mapping.
- Firewall with Stateful Packet Inspection, client privileges, intrusion detection, and NAT.
- NAT also enables multi-user Internet access via a single user account, and virtual server functionality (providing protected access to Internet services such as web, FTP, e-mail, and Telnet).
- VPN pass-through (IPSec-ESP Tunnel mode, L2TP, PPTP).
- User-definable application sensing tunnel supports applications requiring multiple connections.
- Easy setup through a web browser on any operating system that supports TCP/IP.
- Compatible with all popular Internet applications.

## 1.3 Applications

Many advanced networking features are provided by the SAGEM F@st$^{TM}$ 1500WG ADSL Router:

### • Wireless and Wired LAN

The SAGEM F@st$^{TM}$ 1500WG ADSL Router provides connectivity to 10/100 Mbps devices, and wireless IEEE 802.11g compatible devices, making it easy to create a network in small offices or homes.

### • Internet Access

This device supports Internet access through an ADSL connection. Since many DSL providers use PPPoE or PPPoA to establish communications with end users, the SAGEM F@st$^{TM}$ 1500WG ADSL Router includes built-in clients for these protocols, eliminating the need to install these services on your computer.

## • Shared IP Address

The SAGEM F@st™ 1500WG ADSL Router provides Internet access for up to 253 users via a single shared IP address. Using only one ISP account, multiple users on your network can browse the web at the same time.

## • Virtual Server

If you have a fixed IP address, you can set the SAGEM F@st™ 1500WG ADSL Router to act as a virtual host for network address translation. Remote users access various services at your site using a constant IP address. Then, depending on the requested service (or port number), the SAGEM F@st™ 1500WG ADSL Router can route the request to the appropriate server (at another internal IP address). This secures your network from direct attack by hackers, and provides more flexible management by allowing you to change internal IP addresses without affecting outside access to your network.

## • DMZ Host Support

Allows a networked computer to be fully exposed to the Internet.
This function is used when NAT and firewall security prevent an Internet application from functioning correctly.

## • Security

The SAGEM F@st™ 1500WG ADSL Router supports security features that deny Internet access to specified users, or filter all requests for specific services that the administrator does not want to serve. The SAGEM F@st™ 1500WG ADSL Router's firewall also blocks common hacker attacks, including IP Spoofing, Land Attack, Ping of Death, IP with zero length, Smurf Attack, UDP port loopback, Snork Attack, TCP null scan, and TCP SYN flooding. WEP (Wired Equivalent Privacy), SSID, and MAC filtering provide security over the wireless network.

## • Virtual Private Network (VPN)

The SAGEM F@st™ 1500WG ADSL Router supports three of the most commonly used VPN protocols - PPTP, L2TP, and IPSec. These protocols allow remote users to establish a secure connection to their corporate network. If your service provider supports VPNs, then these protocols can be used to create an authenticated and encrypted tunnel for passing secure data over the Internet (i.e., a traditionally shared data network).

The VPN protocols supported by the SAGEM F@st™ 1500WG ADSL Router are briefly described below:

- Point-to-Point Tunneling Protocol - Provides a secure tunnel for remote client access to a PPTP security gateway. PPTP includes provisions for call origination and flow control required by ISPs.
- L2TP merges the best features of PPTP and L2F - Like PPTP, L2TP requires that the ISP's routers support the protocol.
- IP Security - Provides IP network-layer encryption. IPSec can support large encryption networks (such as the Internet) by using digital certificates for device authentication.

## 1.4 Composition of the supply

The SAGEM F@st™ 1500 is supplied in a package with:

- one SAGEM F@st™ 1500 router

or

- one SAGEM F@st™ 1500WG router
- one mains adapter unit
- one RJ11/RJ11 lead (length = 3 m)
- one crossed RJ45/RJ45 Ethernet lead (length = 1.8 m)
- one CD-ROM
- ADSL filters (optional)
- wireless accessories (optional)

**Note:** This list is by no means exhaustive; the package may also include safety instructions and other documents.

The CD ROM contains:

- the software for installing the four Ethernet (ETH) interfaces.
- the SAGEM F@st™ 1500 User Guide in pdf file format.
- the Acrobat® Reader™ software for reading pdf files.

**Incomplete or damaged supply** If the equipment is received damaged or incomplete, contact the supplier of your SAGEM F@st™ 1500 router.

## 1.5 Prerequisites

To use the SAGEM F@st™ 1500, you must have:

- a line supporting ADSL transmission.
- a subscription to a service provider (for the Internet connection).
- terminals with a TCP/IP protocol stack,
  - an Ethernet 10BASE-T or 10/100BASE-T interface,

  or

  - a wireless interface (IEEE 802.11b/g).

and, for the SAGEM F@st™ 1500's HTTP/HTML configuration:

- a WEB browser (Internet Explorer, version 5 or above).
- a monitor with a minimum resolution of 1024 x 728 pixels.

Before installing the SAGEM F@st™ 1500 router, we would advise you to uninstall any other modem or ADSL router.

# 2. Description and Physical installation

| | | |
|---|---|---|
| This chapter covers | ➢ a description of the SAGEM F@st$^{TM}$ 1500 | Section 2.1 |
| | ➢ how to install the SAGEM F@st$^{TM}$ 1500 | Section 2.2 |
| | ➢ how to connect the ports of the SAGEM F@st$^{TM}$ 1500 | Section 2.3 |
| | ➢ how to power up the SAGEM F@st$^{TM}$ 1500 | Section 2.4 |

Before installing the SAGEM F@st$^{TM}$ 1500 ADSL Router, verify that you have all the items listed under the Package Contents list (see § 1.4). If any of the items are missing or damaged, contact your local distributor.

Also be sure that you have all the necessary cabling before installing the SAGEM F@st$^{TM}$ 1500 ADSL Router. After installing the ADSL Router, refer to “Configuring the SAGEM F@st$^{TM}$ 1500 ADSL Router” on chapter 4.

## 2.1 Hardware Description

The SAGEM F@st$^{TM}$ 1500 ADSL Router contains an integrated ADSL modem and connects to the Internet or to a remote site using its RJ-11 WAN port. It can be connected directly to your PC or to a local area network using any of the four Fast Ethernet LAN ports.

Access speed to the Internet depends on your service type. Full-rate ADSL provides up to 8 Mbps downstream and 640 kbps upstream. G.lite (or splitterless) ADSL provides up to 1.5 Mbps downstream and 512 kbps upstream. However, you should note that the actual rate provided by specific service providers may vary dramatically from these upper limits.

Data passing between devices connected to your local area network can run at up to 100 Mbps over the Fast Ethernet ports and 54 Mbps over the built-in wireless network adapter.

The SAGEM F@st$^{TM}$ 1500 ADSL Router includes an LED display on the front panel for system power and port indications that simplifies installation and network troubleshooting. It also provides the following ports on the rear panel.

### 2.1.1 Front panel




*Figure 2.1 - Front Panel*

From left to right, this comprises eight green supervisory LEDs, followed by the SAGEM logo, the meaning of which is given in the table below:

| LED | Status | Description |
|---|---|---|
| **PWR** | On | The SAGEM F@st™ 1500 ADSL Router is receiving power. Normal operation. |
| | Off | Power off or failure. |
| **ADSL** | On | ADSL connection is functioning correctly. |
| | Flashing | The SAGEM F@st™ 1500 ADSL Router is establishing an ADSL link. |
| | Off | ADSL connection is not established. |
| **WLAN** | Flashing | The indicated ADSL port is sending or receiving data. |
| **ALM** | On | PPP is not established. |
| | Off | PPP has been established. |
| **ETHERNET** | On | Ethernet connection is established. |
| (4 LEDs) | Flashing | The indicated LAN port is sending or receiving data. |
| | Off | There is no LAN connection on the port. |

## 2.1.2 Rear panel

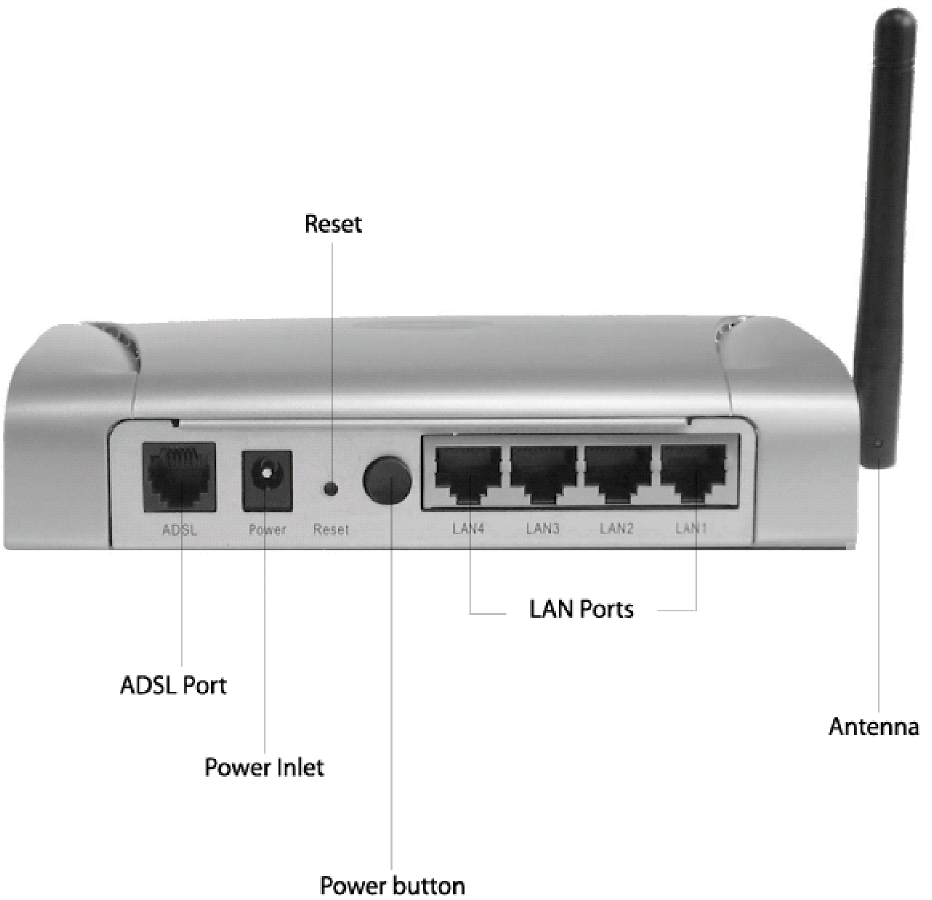



***Figure 2.2 - Rear Panel***

| Ports / Button | Description |
|---|---|
| **ADSL** | WAN port (RJ-11). Connect your ADSL line to this port. |
| **Power** | Connect the included power adapter to this inlet.<br>**Warning:** Using the wrong type of power adapter may damage the SAGEM F@st$^{TM}$ 1500 ADSL Router. |
| **Reset** | Use this button to reset the power and restore the default factory settings. To reset without losing configuration settings, see “Reset” on chapter 4. |
| **I/0** | On/Off switch for secondary power from the mains adapter block |
| **LAN4** | Fast Ethernet ports (RJ-45). Connect devices on your local area network to these ports (i.e., a PC, hub, or switch). |
| **LAN3** | |
| **LAN2** | |
| **LAN1** | |
| | Directable antenna (180° rotation), not removable<br>(only for the SAGEM F@st$^{TM}$ 1500WG). |

## 2.2 Physical Installation

### 2.2.1 Installation instructions

#### Environment

- The SAGEM F@st™ 1500 must be installed and used inside a building.
- The room temperature must not exceed 45°C.
- The SAGEM F@st™ 1500 must be placed on a desktop.
- The SAGEM F@st™ 1500 must not be exposed to strong sunlight or excessive heat.
- The SAGEM F@st™ 1500 must not be placed in an environment subject to significant steam condensation.
- The SAGEM F@st™ 1500 must not be exposed to splashed water.
- The SAGEM F@st™ 1500 casing must not be covered.
- The SAGEM F@st™ 1500WG and its peripheral devices must not be used for outdoor transmissions.

#### Power supply source

- The SAGEM F@st™ 1500's mains adapter block must not be covered.
- The SAGEM F@st™ 1500 router is supplied with its own power supply adapter. It must not be used with any other adapter.
- This Class II adapter does not need to be earthed. The connection to the electrical network must comply with the information on its label.
- Use a readily accessible mains outlet near to the router. The power supply lead is 2 m long.
- Arrange the power supply lead to avoid any accidental disconnection of the power supply to the router.
- The SAGEM F@st™ 1500 is designed for connection to a TT or TN system power supply network.
- The SAGEM F@st™ 1500 is not designed for connection to an IT system electrical installation (power supply with separate neutral).
- Protection against short circuits and leaks between phase, neutral and earth must be provided by the building's electrical installation. The power circuit for this equipment must be fitted with 16 A overcurrent protection and differential protection.
- The mains connection must be via a readily accessible, switched wall socket.

#### Maintenance

- The casing must not be opened. This must be done only by personnel qualified and approved by your supplier.
- Do not use liquid or aerosol cleaning agents.
- Never open the mains adapter block; this can expose you to mortal danger.

## 2.2.2 Desktop Installation

- place the SAGEM F@st™ 1500 on its plastic stand fitted with four non-slip rubber feet.
- make sure that the various leads pass correctly through the cable guide to avoid any risk of tension or of dropping the unit.

## 2.3 Settings and Connecting

### 2.3.1 ISP settings

Please collect the following information from your ISP before setting up the SAGEM F@st™ 1500 ADSL Router:

- ISP account user name and password,
- Protocol, encapsulation and VPI/VCI circuit numbers,
- DNS server address,
- IP address, subnet mask and default gateway (for fixed IP users only).

### 2.3.2 Install the SAGEM F@st™ 1500 ADSL Router

The SAGEM F@st™ 1500 ADSL Router can be positioned at any convenient location in your office or home. No special wiring or cooling requirements are needed. You should, however, comply with the following guidelines:

- Keep the SAGEM F@st™ 1500 ADSL Router away from any heating devices.
- Do not place the SAGEM F@st™ 1500 ADSL Router in a dusty or wet environment.

You should also remember to turn off the power, remove the power cord from the outlet, and keep your hands dry when you install the SAGEM F@st™ 1500 ADSL Router.

### 2.3.3 Connect the ADSL Line

Connect the supplied RJ-11 cable from the ADSL Microfilter/Splitter to the ADSL port on your Sagem SAGEM F@st™ 1500 Router. When inserting an ADSL RJ-11 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated.

## 2.3.4 Phone Line Configuration

### Installing a Full-Rate Connection

If you are using a full-rate (G.dmt) connection, your service provider will attach the outside ADSL line to a data/voice splitter. In this case you can connect your phones and computer directly to the splitter as shown below:

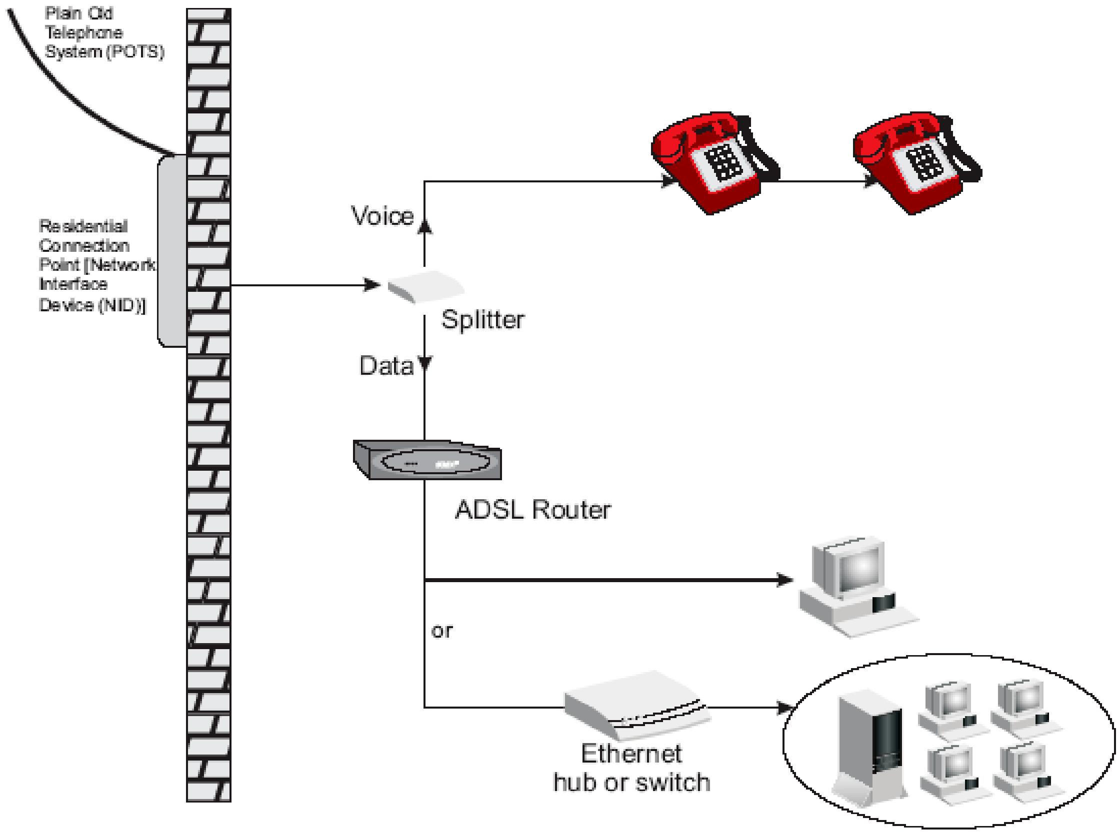



*Figure 2.3 - Installing with a Splitter*

## Installing a Splitterless Connection

If you are using a splitterless (G.lite) connection, then your service provider will attach the outside ADSL line directly to your phone system.

In this case you can connect your phones and computer directly to the incoming ADSL line, but you will have to add low-pass filters to your phones as shown below:

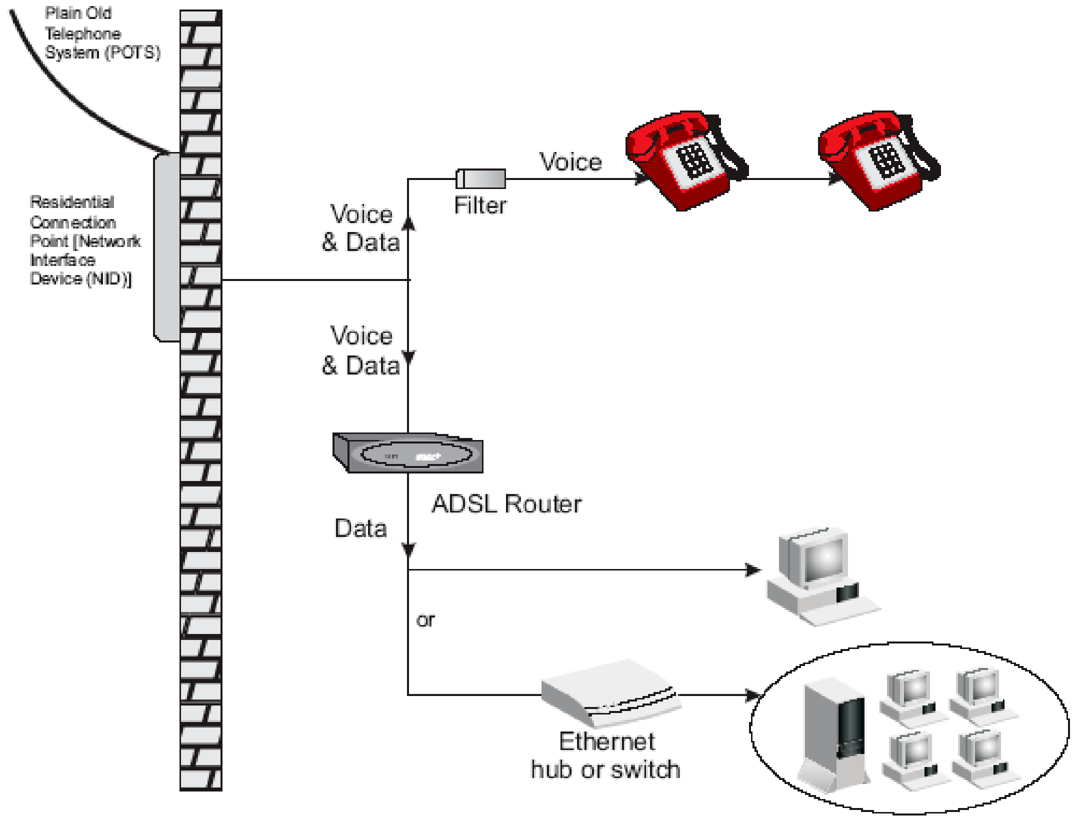



*Figure 2.4 - Installing without a splitter*

## 2.3.5 Attach to Your Network Using Ethernet Cabling

The four LAN ports on the SAGEM F@st™ 1500 ADSL Router auto-negotiate the connection speed to 10 Mbps Ethernet or 100 Mbps Fast Ethernet, as well as the transmission mode to half duplex or full duplex. Use RJ-45 cables to connect any of the four LAN ports on the SAGEM F@st™ 1500 ADSL Router to an Ethernet adapter on your PC. Otherwise, cascade any of the LAN ports on the SAGEM F@st™ 1500 ADSL Router to an Ethernet hub or switch, and then connect your PC or other network equipment to the hub or switch. When inserting an RJ-45 connector, be sure the tab on the connector clicks into position to ensure that it is properly seated.

Do not plug a phone jack connector into an RJ-45 port. This may damage the SAGEM F@st™ 1500 ADSL Router.

Use 100-ohm shielded or unshielded twisted-pair cable with RJ-45 connectors for all Ethernet ports. Use Category 3, 4, or 5 for connections that operate at 10 Mbps, and Category 5 for connections that operate at 100 Mbps.

Make sure each twisted-pair cable length does not exceed 100 meters (328 feet).

## 2.3.6 Connect the Power Adapter

Plug the power adapter into the power socket on the rear of the SAGEM F@st™ 1500 ADSL Router, and the other end into a power outlet.

Check the power indicator on the front panel is lit. If the power indicator is not lit, refer to “Troubleshooting” on Appendice A.

In case of a power input failure, the SAGEM F@st™ 1500 ADSL Router will automatically restart and begin to operate once the input power is restored.

## 2.4 Powering up the SAGEM F@st™ 1500 ADSL router

- Check that the SAGEM F@st™ 1500 router is connected correctly to the electrical power supply network (see section 2.3.2).
- Set the **I/O** switch to **I** (bottom position).

Initially, the **PWR** LED and all the **ETHERNET** LEDs will come on. After a certain period, only the **PWR** LED will remain lit, the extreme right **ETHERNET** LED is slowly blinking, the **ALM** LED will come on and the **WLAN** LED (only for the SAGEM F@st™ 1500WG) will then come on if the wireless module is installed and active, and finally the **ADSL** LED will start blinking.

# 3. Configuring Client Computer

| | | |
|---|---|---|
| This chapter covers | ➢ the TCP/IP Configuration | Section 3.1 |
| | ➢ the configuration of your Windows computer | Section 3.2 |
| | ➢ the configuration of your Mac computer | Section 3.3 |

After completing hardware setup by connecting all your network devices, you need to configure your computer to connect to the SAGEM F@st™ 1500 ADSL Router.

See:

### PC

| | |
|---|---|
| Windows 98/Me | on sub-section 3.2.1 |
| Windows NT 4.0 | on sub-section 3.2.2 |
| Windows 2000 | on sub-section 3.2.3 |
| Windows XP | sub-section 3.2.4 |

### Mac

| | |
|---|---|
| Mac OS 10.2 | on sub-section 3.3 |

Configuring Your Macintosh Computer" depending on your operating system.

## 3.1 TCP/IP Configuration

To access the Internet through the SAGEM F@st™ 1500 ADSL Router, you must configure the network settings of the computers on your LAN to use the same IP subnet as the SAGEM F@st™ 1500 ADSL Router. The default IP settings for the SAGEM F@st™ 1500 ADSL Router are:

| | | |
|---|---|---|
| **IP Address** | : | **192.168.2.1** |
| **Subnet Mask** | : | 255.255.255.0 |

These settings can be changed to fit your network requirements, but you must first configure at least one computer to access the SAGEM F@st™ 1500 ADSL Router's web configuration interface in order to make the required changes. (See "Configuring the SAGEM F@st™ 1500 ADSL Router" on chapter 4 for instruction on configuring the SAGEM F@st™ 1500 ADSL Router).

## 3.2 Configuring your Windows computer

### 3.2.1 On Windows 98 / Me

You may find that the instructions in this section do not exactly match your version of Windows. This is because these steps and screen shots were created from Windows 98. **Windows Millennium Edition is similar, but not identical, to Windows 98.**

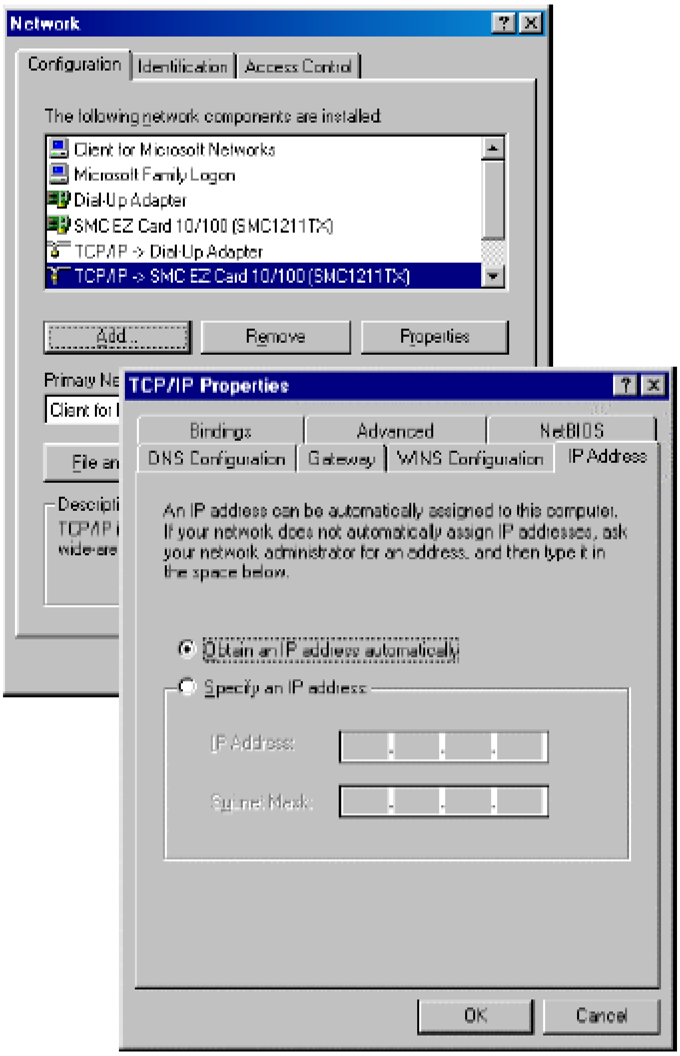
1) On the Windows desktop, click Start/Settings/Control Panel.

2) In Control Panel, double-click the Network icon.




3) In the Network window, under the Configuration tab, double-click the TCP/IP item listed for your network card.

4) In the **TCP/IP** window, select the IP Address tab. If “**Obtain an IP address automatically**” is already selected, your computer is already configured for DHCP. If not, select this option.




5) Windows may need your **Windows 95/98/Me** CD to copy some files. After it finishes copying, it will prompt you to restart your system. Click Yes and your computer will restart.




## TCP/IP Configuration Setting

| | |
|---|---|
| **Primary DNS Server** | ____.____.____.____ |
| **Secondary DNS Server** | ____.____.____.____ |
| **Default Gateway** | ____.____.____.____ |
| **Host Name** | ____.____.____.____ |

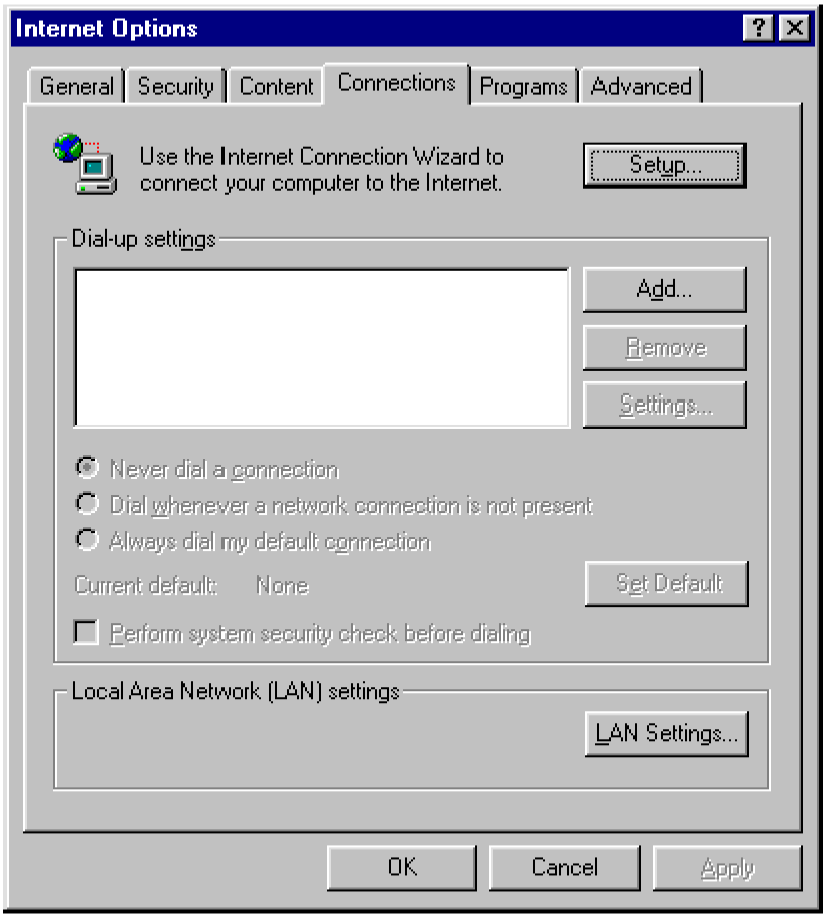
 

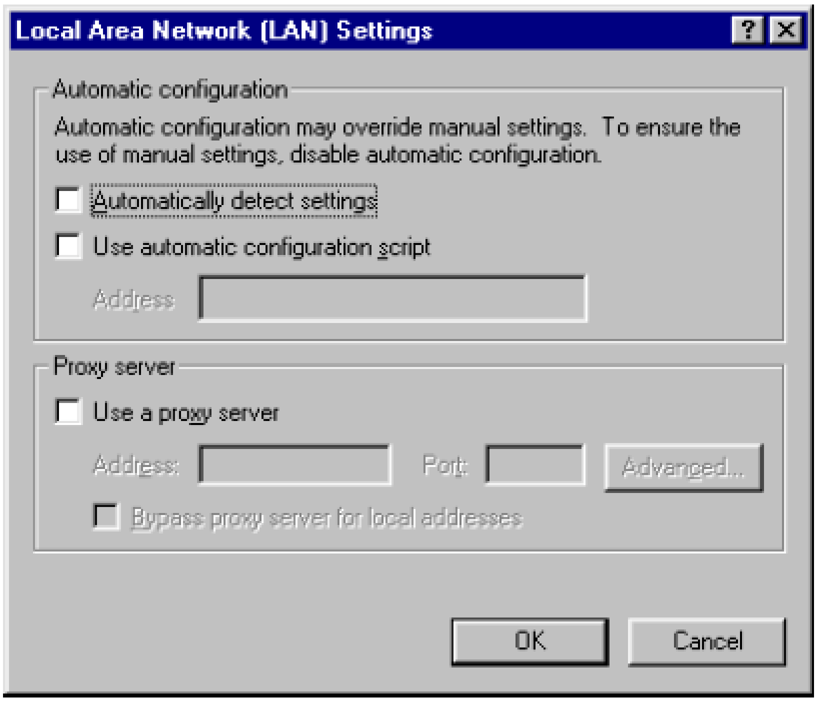
## Disable HTTP Proxy

You need to verify that the “HTTP Proxy” feature of your web browser is disabled. This is so that your browser can view the SAGEM F@st™ 1500 ADSL Router’s HTML configuration pages. The following steps are for Internet Explorer.

***Internet Explorer***

1) Open Internet Explorer.
2) Click the **Stop** button , then click **Tools/Interne** Options.
3) In the **Internet Options** window, click the Connections tab. Next, click the **LAN Settings…** button.
4) Clear all the check boxes.
5) Click **OK**, and then click **OK** again to close the **Internet Options** window.

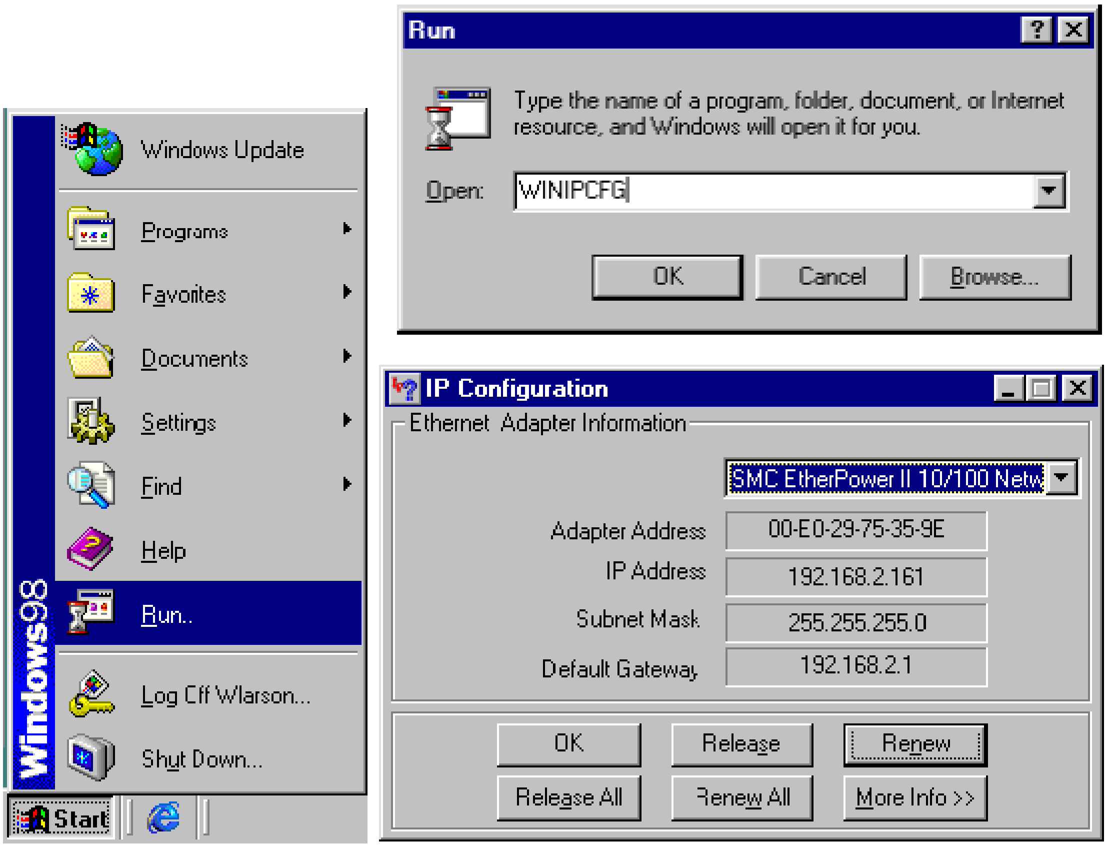



Local Area Network (LAN) Settings
Automatic configuration
Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
Automatically detect settings
Use automatic configuration script
Address
Proxy server
Use a proxy server
Address:
Port:
Advanced...
Bypass proxy server for local addresses
OK
Cancel

## Obtain IP Settings from SAGEM F@st™ 1500 ADSL Router

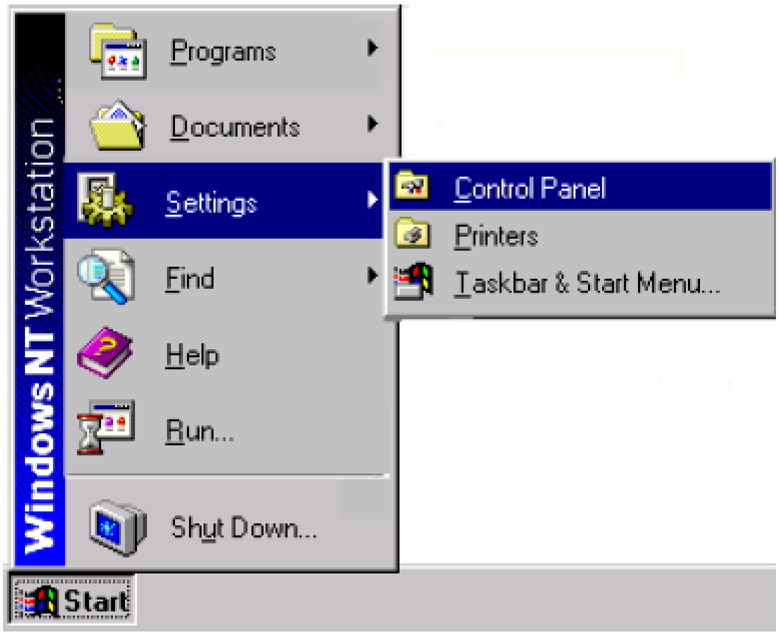
Now that you have configured your computer to connect to your SAGEM F@st™ 1500 ADSL Router, it needs to obtain new network settings. By releasing old DHCP IP settings and renewing them with settings from your SAGEM F@st™ 1500 ADSL Router, you can also verify that you have configured your computer correctly.

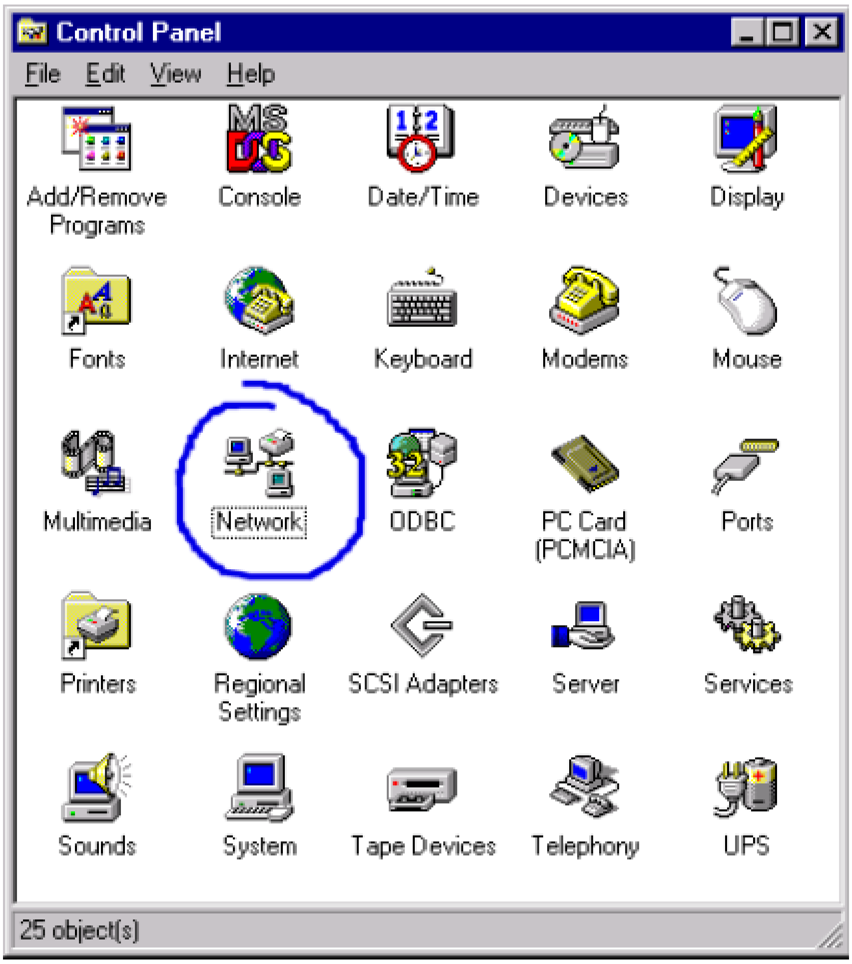
1) On the Windows desktop, click **Start/Run**...
2) Type "**WINIPCFG**" and click **OK**. It may take a second or two for the IP Configuration window to appear.
3) In the IP Configuration window, select your network card from the drop-down menu. Click Release and then click Renew. Verify that your IP address is now **192.168.2.xxx**, your Subnet Mask is **255.255.255.0** and your Default Gateway is **192.168.2.1**. These values confirm that your SAGEM F@st™ 1500 ADSL Router is functioning. Click OK to close the IP Configuration window.



## 3.2.2 On Windows NT 4.0

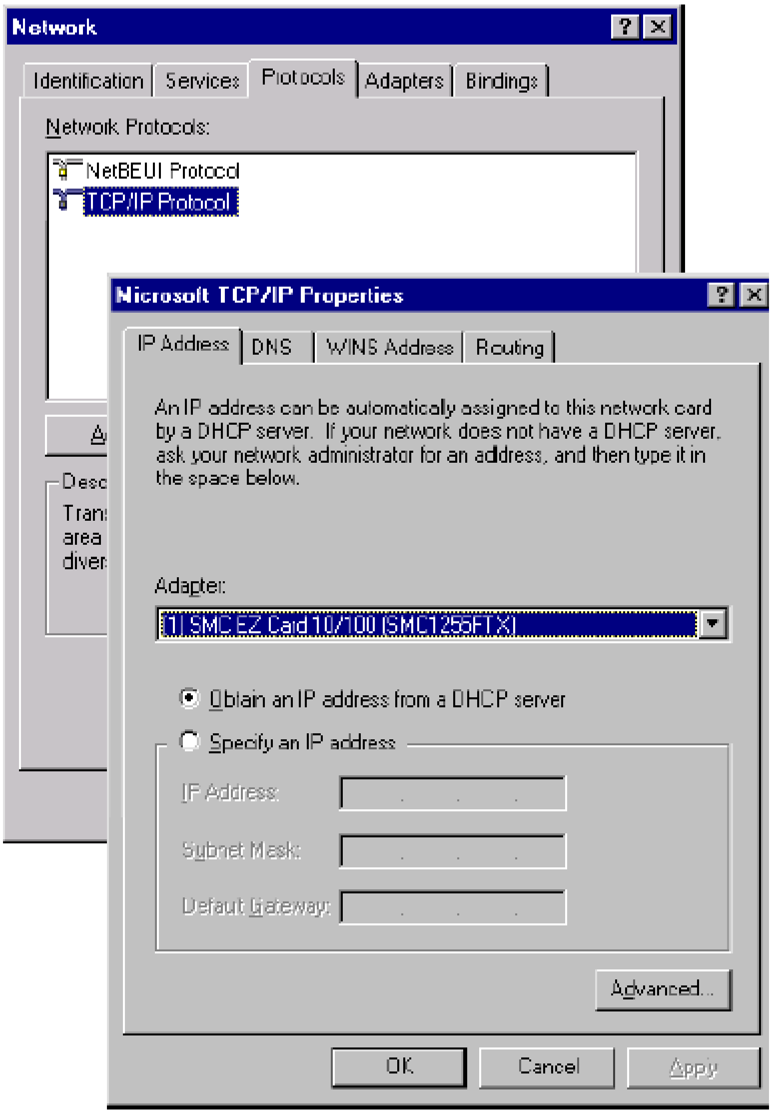
1) On the Windows desktop, click **Start/Settings/Control Panel**.

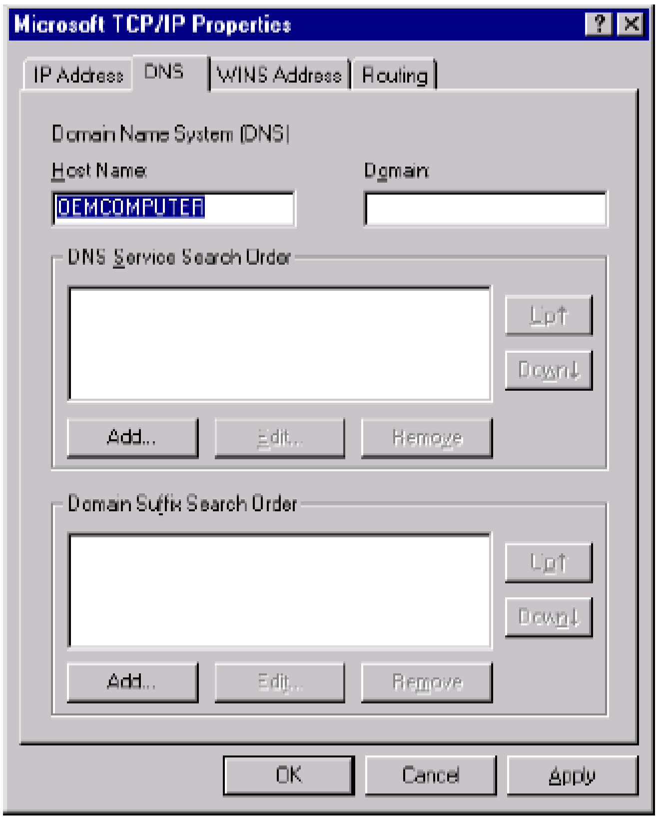


2) Double-click the **Network** icon.
3) In the Network window, select the Protocols tab. Double-click **TCP/IP Protocol**.
4) When the Microsoft TCP/IP Properties window open, select the **IP Address** tab.
5) In the Adapter drop-down list, be sure your Ethernet adapter is selected.
6) If "**Obtain an IP address automatically**" is already selected, your computer is already configured for DHCP. If not, select this option and click "**Apply**."
7) Click the **DNS** tab to see the primary and secondary DNS servers. Record these values, and then click "**Remove**." Click "Apply", and then "**OK**.






8) Windows may copy some files, and will then prompt you to restart your system. Click **Yes** and your computer will shut down and restart.

## TCP/IP Configuration Setting

| | |
|---|---|
| **Primary DNS Server** | ____.____.____.____ |
| **Secondary DNS Server** | ____.____.____.____ |
| **Default Gateway** | ____.____.____.____ |
| **Host Name** | ____.____.____.____ |

## Disable HTTP Proxy

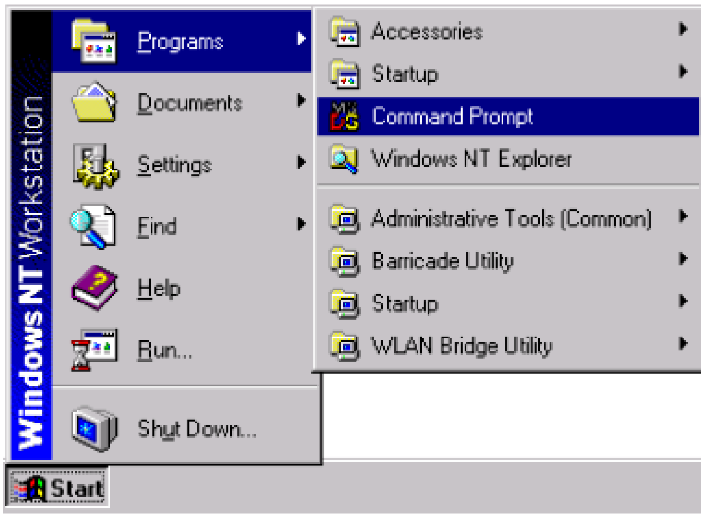
You need to verify that the “HTTP Proxy” feature of your web browser is disabled. This is so that your browser can view the SAGEM F@st™ 1500 ADSL Router’s HTML configuration pages. (refer to Internet Explorer on § 3.2.1).

## Obtain IP Settings from SAGEM F@st™ 1500 ADSL Router

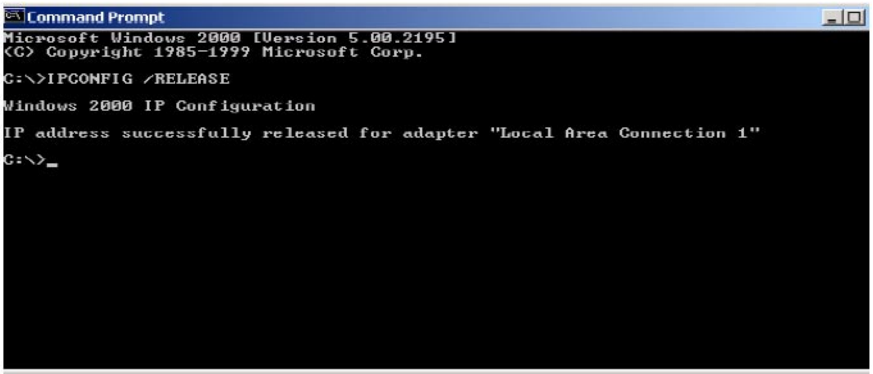
Now that you have configured your computer to connect to your SAGEM F@st™ 1500 ADSL Router, it needs to obtain new network settings. By releasing old DHCP IP settings and renewing them with settings from your SAGEM F@st™ 1500 ADSL Router, you can also verify that you have configured your computer correctly.

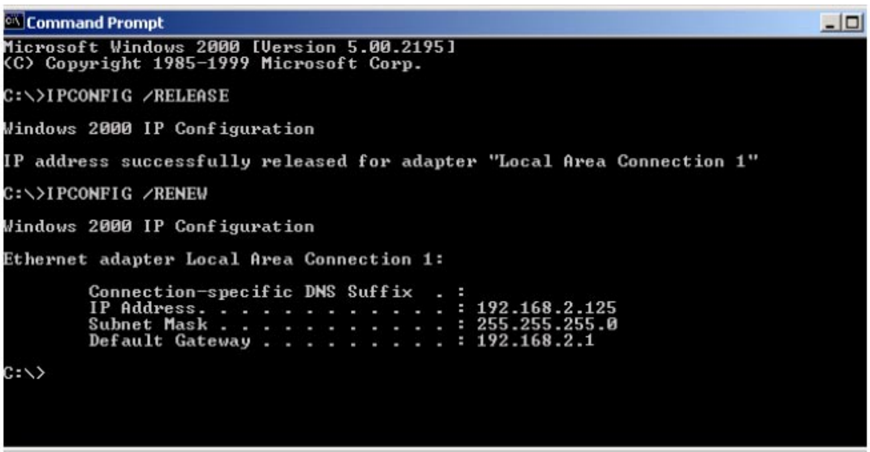
1) On the Windows desktop, click **Start/Programs/ Command Prompt**.




2) In the Command Prompt window, type "**IPCONFIG /RELEASE**" and press the **ENTER** key.




3) Type "**IPCONFIG /RENEW**" and press the **ENTER** key. Verify that your IP Address is now **192.168.2.xxx**, your Subnet Mask is **255.255.255.0** and your Default Gateway is **192.168.2.1**. These values confirm that your SAGEM F@st$^{TM}$ 1500 ADSL Router is functioning.

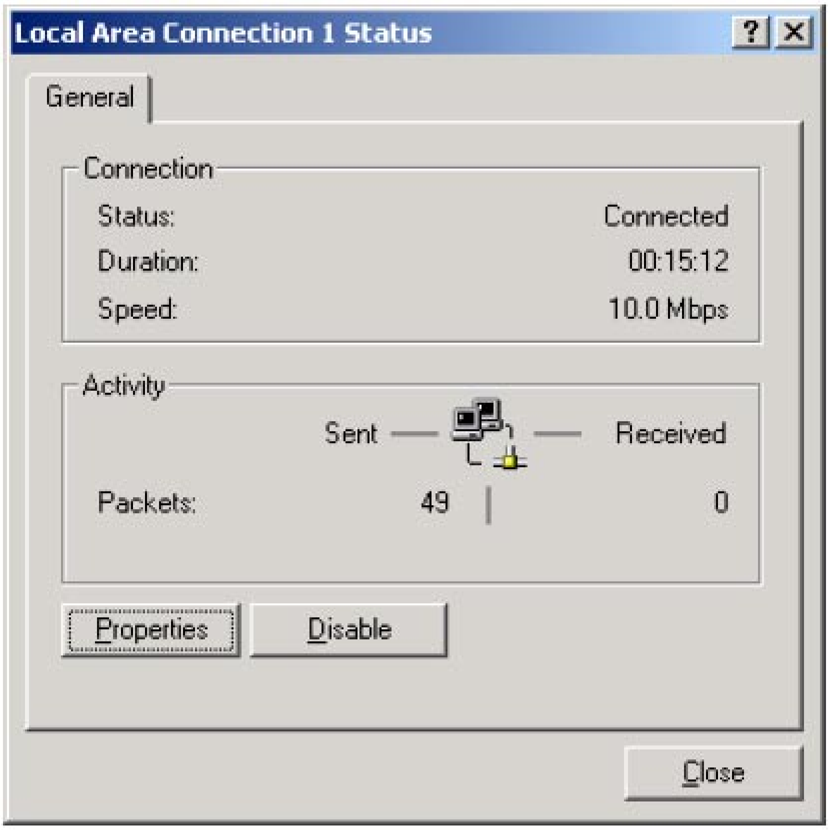



4) Type "**EXIT**" and press the **ENTER** key to close the Command Prompt window.

**Your computer is now configured to connect to the SAGEM F@st$^{TM}$ 1500 ADSL Router.**

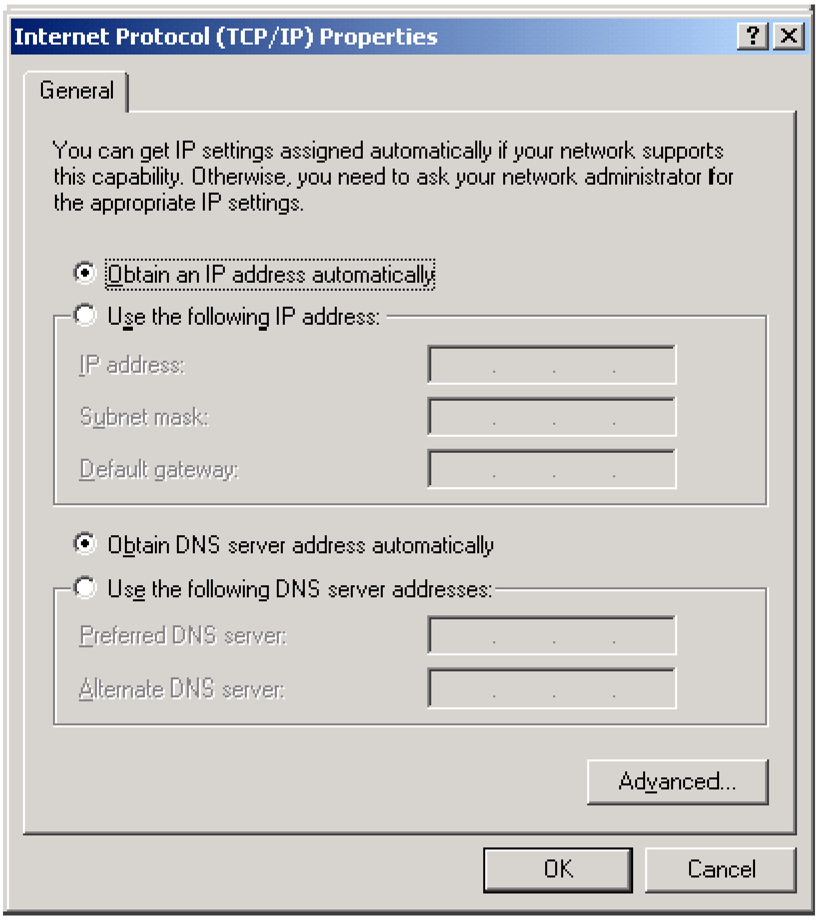
## 3.2.3 On Windows 2000

1) On the Windows desktop, click **Start/Settings/Network** and **Dial-Up Connections**.
2) Click the icon that corresponds to the connection to your SAGEM F@st™ 1500 ADSL Router.
3) The connection status screen will open. Click **Properties**.



4) Double-click **Internet Protocol (TCP/IP)**.




5) If “**Obtain an IP address automatically**” and “**Obtain DNS server address automatically**” are already selected, your computer is already configured for DHCP. If not, select this option.

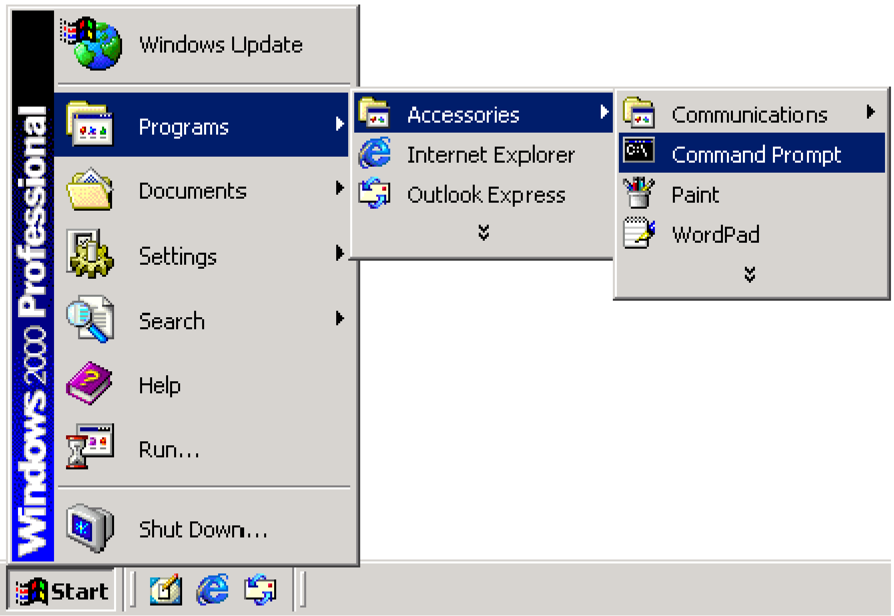
## Disable HTTP Proxy

You need to verify that the “HTTP Proxy” feature of your web browser is disabled. This is so that your browser can view the SAGEM F@st™ 1500 ADSL Router’s HTML configuration pages. (refer to Internet Explorer on § 3.2.1).

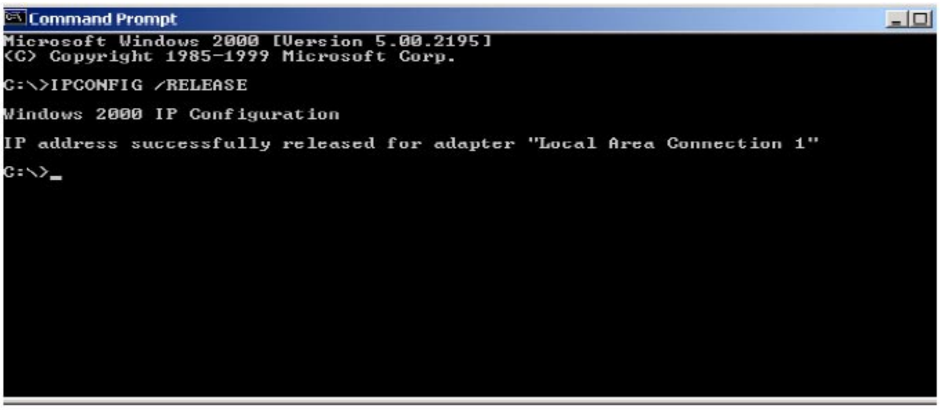
## Obtain IP Settings from SAGEM F@st™ 1500 ADSL Router

Now that you have configured your computer to connect to your SAGEM F@st™ 1500 ADSL Router, it needs to obtain new network settings. By releasing old DHCP IP settings and renewing them with settings from SAGEM F@st™ 1500 ADSL Router, you can verify that you have configured your computer correctly.

1) On the Windows desktop, click **Start/Programs/Accessories/Command Prompt**.

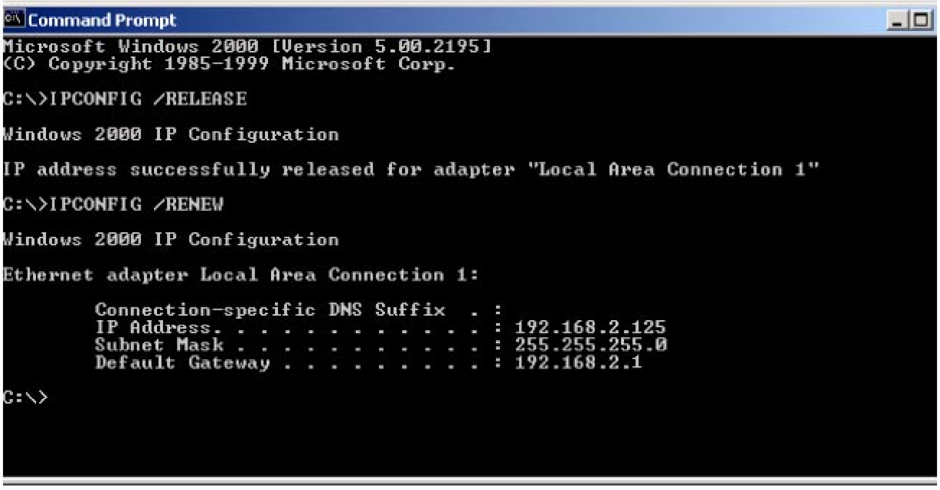



2) In the Command Prompt window, type "**IPCONFIG/RELEASE**" and press the **ENTER** key.



3) Type "**IPCONFIG /RENEW**" and press the **ENTER** key. Verify that your IP Address is now **192.168.2.xxx**, your Subnet Mask is **255.255.255.0** and your Default Gateway is **192.168.2.1**. These values confirm that your SAGEM F@st™ 1500 ADSL Router is functioning.

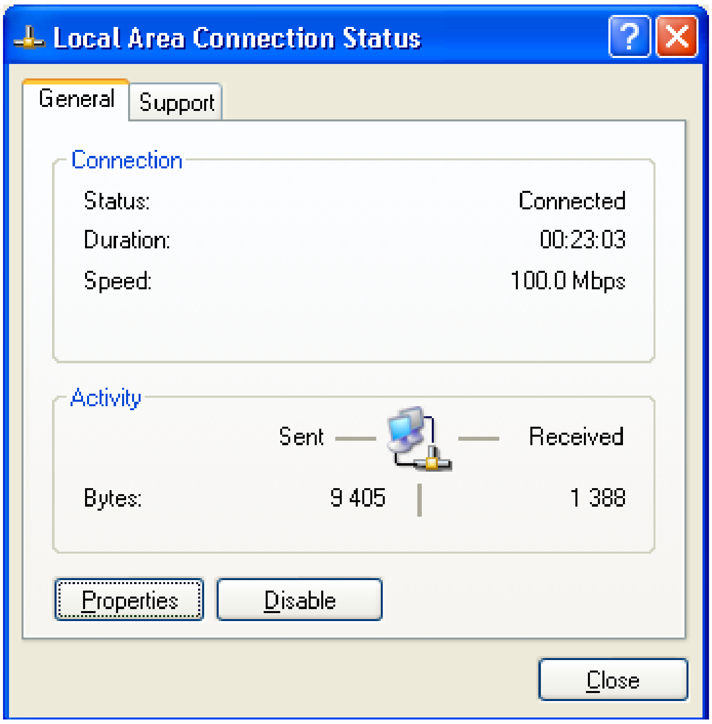



4) Type "EXIT" and press the ENTER key to close the Command Prompt window.

**Your computer is now configured to connect to the SAGEM F@st™ 1500 ADSL Router.**

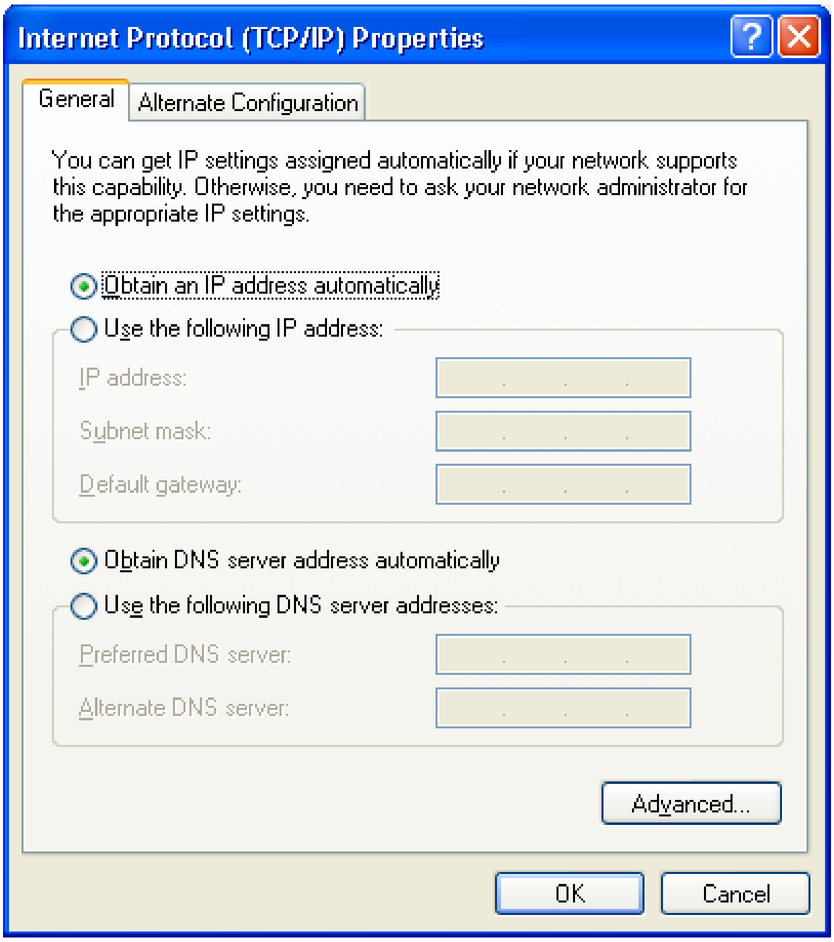
## 3.2.4 On Windows XP

1) On the Windows desktop, click **Start/Control Panel**.
2) In the Control Panel window, click **Network and Internet Connections**.
3) The Network Connections window will open. Double-click the connection for this device.
4) On the connection status screen, click **Properties**.



5) Double-click **Internet Protocol (TCP/IP)**.




6) If “**Obtain an IP address automatically**” and “**Obtain DNS server address automatically**” are already selected, your computer is already configured for DHCP. If not, select this option.

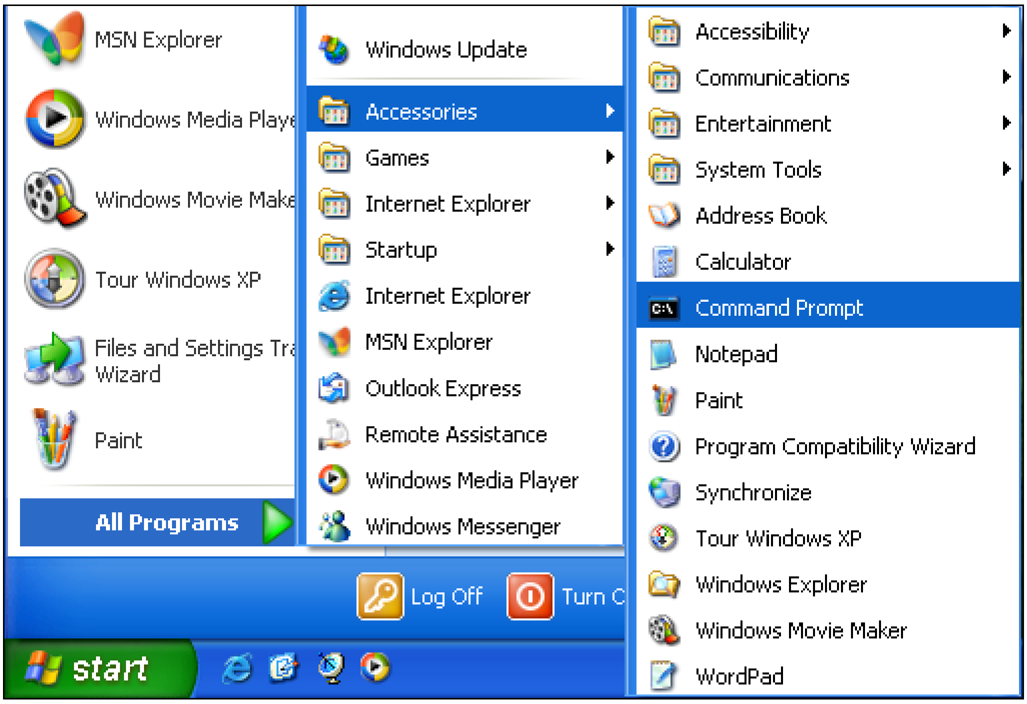
## Disable HTTP Proxy

You need to verify that the “HTTP Proxy” feature of your web browser is disabled. This is so that your browser can view the SAGEM F@st™ 1500 ADSL Router’s HTML configuration pages. (refer to Internet Explorer on § 3.2.1).

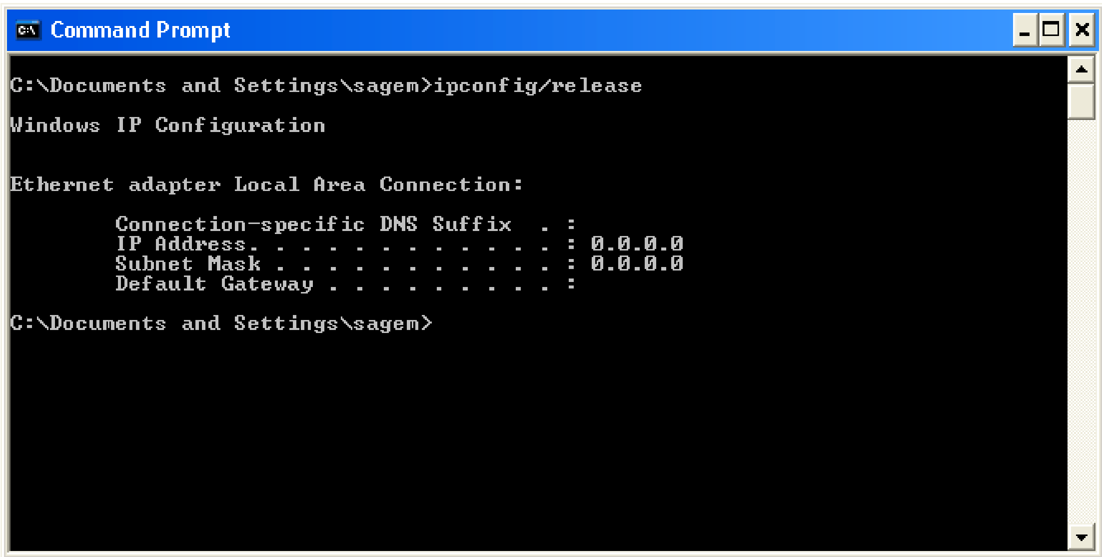
## Obtain IP Settings from Sagem F@st1500 ADSL Router

Now that you have configured your computer to connect to your SAGEM F@st™ 1500 ADSL Router, it needs to obtain new network settings. By releasing old DHCP IP settings and renewing them with settings from SAGEM F@st™ 1500 ADSL Router, you can verify that you have configured your computer correctly.

1) On the Windows desktop, click **Start/All Programs/Accessories/ Command Prompt**.

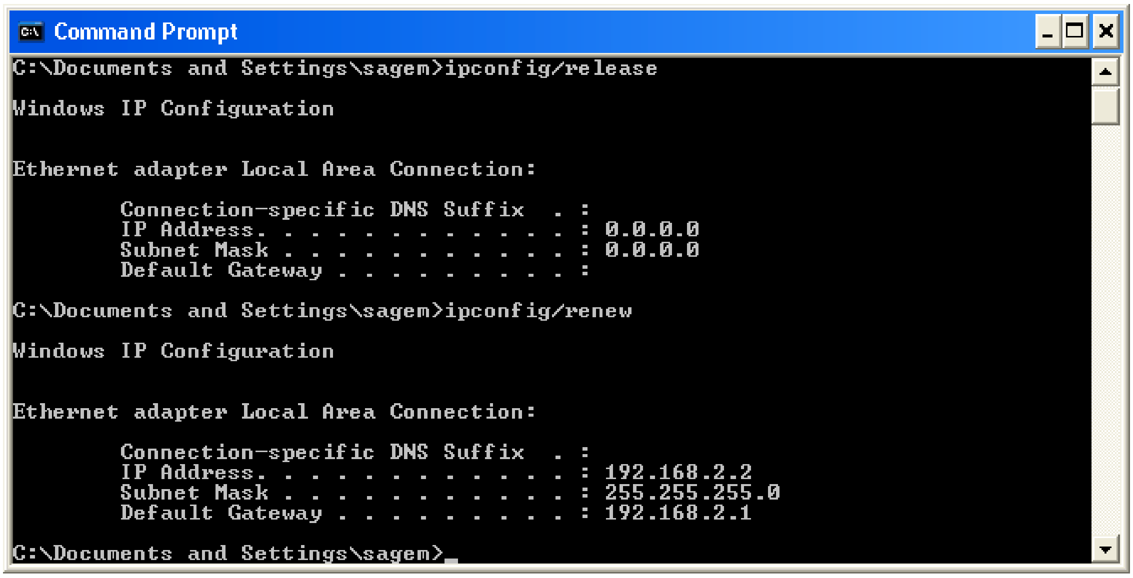



2) In the Command Prompt window, type "**IPCONFIG/RELEASE**" and press the **ENTER** key.



3) Type "**IPCONFIG /RENEW**" and press the ENTER key. Verify that your IP Address is now **192.168.2.xxx**, your Subnet Mask is **255.255.255.0** and your Default Gateway is **192.168.2.1**. These values confirm that your SAGEM F@st™ 1500 ADSL Router is functioning. Type "**EXIT**" and press the **ENTER** key to close the Command Prompt window.



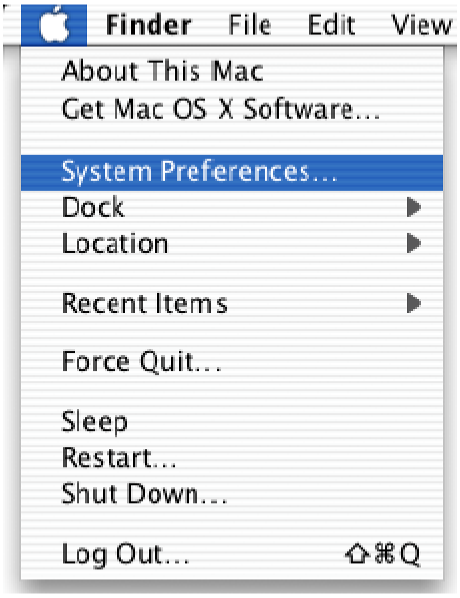

**Your computer is now configured to connect to the SAGEM F@st™ 1500 ADSL Router.**

## 3.3 Configuring your Mac computer

You may find that the instructions here do not exactly match your operating system. This is because these steps and screenshots were created using Mac OS 10.2. Mac OS 7.x and above are similar, but may not be identical to Mac OS 10.2.

Follow these instructions:

1) Pull down the Apple Menu . Click **System Preferences**.

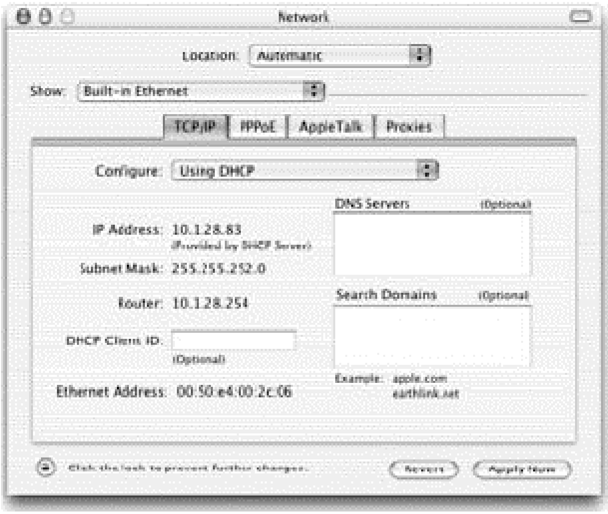



2) Double-click the **Network** icon in the **Systems Preferences** window.



3) If “**Using DHCP Server**” is already selected in the Configure field, your computer is already configured for DHCP. If not, select this Option.




4) Your new settings are shown on the TCP/IP tab. Verify that your IP Address is now **192.168.2.xxx**, your Subnet Mask is **255.255.255.0** and your Default Gateway is **192.168.2.1**. These values confirm that your SAGEM F@st™ 1500 ADSL Router is functioning.

5) Close the Network window. Now your computer is configured to connect to the SAGEM F@st™ 1500 ADSL Router.

## Disable HTTP Proxy

You need to verify that the “HTTP Proxy” feature of your web browser is disabled. This is so that your browser can view the SAGEM F@st™ 1500 ADSL Router’s HTML configuration pages. The following steps are for Internet Explorer.

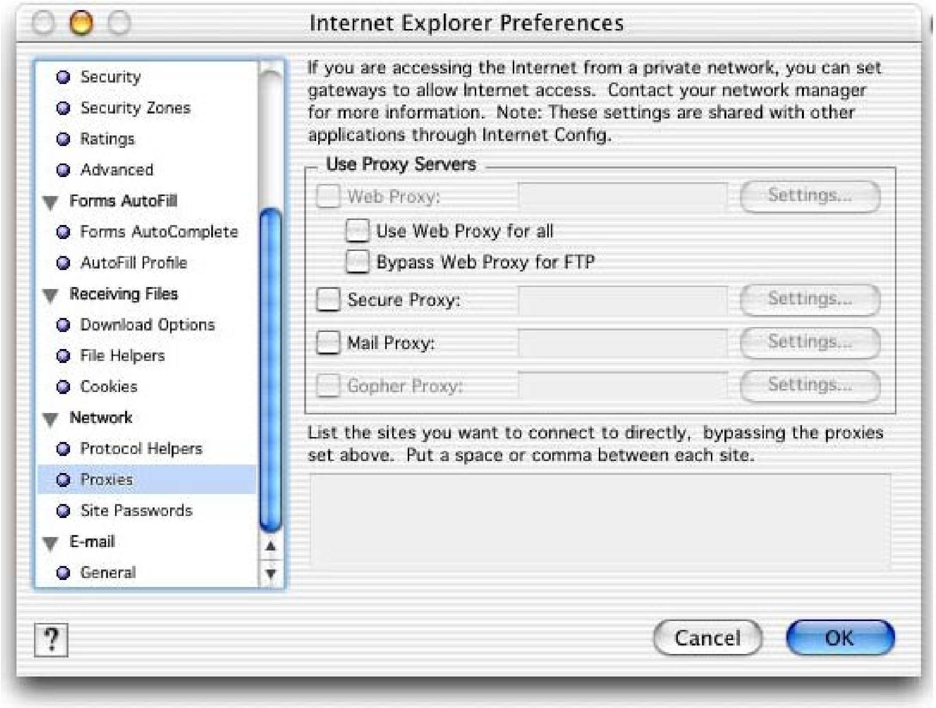
***Internet Explorer***

1) Open Internet Explorer and click the **Stop** button. Click **Explorer/Preferences**.




2) In the Internet Explorer Preferences window, under Network, select **Proxies**.

3) Uncheck all check boxes and click **OK**.


Internet Explorer Preferences
Security
Security Zones
Ratings
Advanced
Forms AutoFill
Forms AutoComplete
AutoFill Profile
Receiving Files
Download Options
File Helpers
Cookies
Network
Protocol Helpers
Proxies
Site Passwords
E-mail
General
If you are accessing the Internet from a private network, you can set gateways to allow Internet access. Contact your network manager for more information. Note: These settings are shared with other applications through Internet Config.
Use Proxy Servers
Web Proxy:
Settings...
Use Web Proxy for all
Bypass Web Proxy for FTP
Secure Proxy:
Settings...
Mail Proxy:
Settings...
Gopher Proxy:
Settings...
List the sites you want to connect to directly, bypassing the proxies set above. Put a space or comma between each site.
Cancel
OK

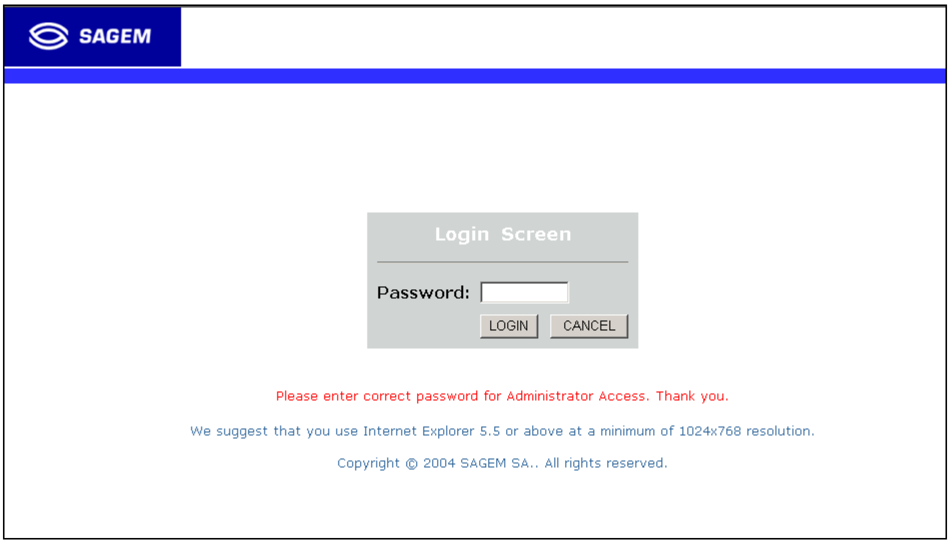
 

# 4. Configuring the SAGEM F@st™ 1500 ADSL router

| | | |
|---|---|---|
| This chapter covers | ➢ The SETUP WIZARD menu | Section 4.2 |
| | ➢ The ADVANCED menu | Section 4.11 |
| | ➢ Finding the MAC address of a Network Card | Section 4.12 |

After you have configured TCP/IP on a client computer, you can configure the SAGEM @st™ 1500 ADSL Router using Internet Explorer 5.0 or above.

To access the SAGEM F@st™ 1500 ADSL Router's management interface, enter the default IP address of the SAGEM F@st™ 1500 ADSL Router in your web browser: **http://192.168.2.1**.




No **Password** needed, just click "**LOGIN**".

## Navigating the Management Interface

The SAGEM F@st™ 1500 ADSL Router's management interface consists of a **Setup Wizard** and an **Advanced Setup** section.

**Setup Wizard:** Use the Setup Wizard if you want to quickly set up the SAGEM F@st™ 1500 ADSL Router. Go to "SETUP WIZARD" on section 4.2

**Advanced Setup:** Advanced Setup supports more advanced functions like hacker attack detection, IP and MAC address filtering, virtual server setup, virtual DMZ host, as well as other functions. Go to "Advanced Setup" on section 4.11.

You can also display router information on section 4.1.

## Making Configuration Changes

Configurable parameters have a dialog box or a drop-down list. Once a configuration change has been made on a page, click the "**SAVE SETTINGS**" or "**NEXT**" button at the bottom of the page to enable the new setting.

To ensure proper screen refresh after a command entry, be sure that Internet Explorer 5.0 is configured as follows: Under the menu Tools/Internet Options/General/Temporary Internet Files/Settings, the setting for "Check for newer versions of stored pages" should be "Every visit to the page".

Some new settings require a "**Save & Reboot**" process to store the modification in the flush memory. You can click the "**Save & Reboot**" button at the top of page.

This section on the left of the Home screen contains the following menus:

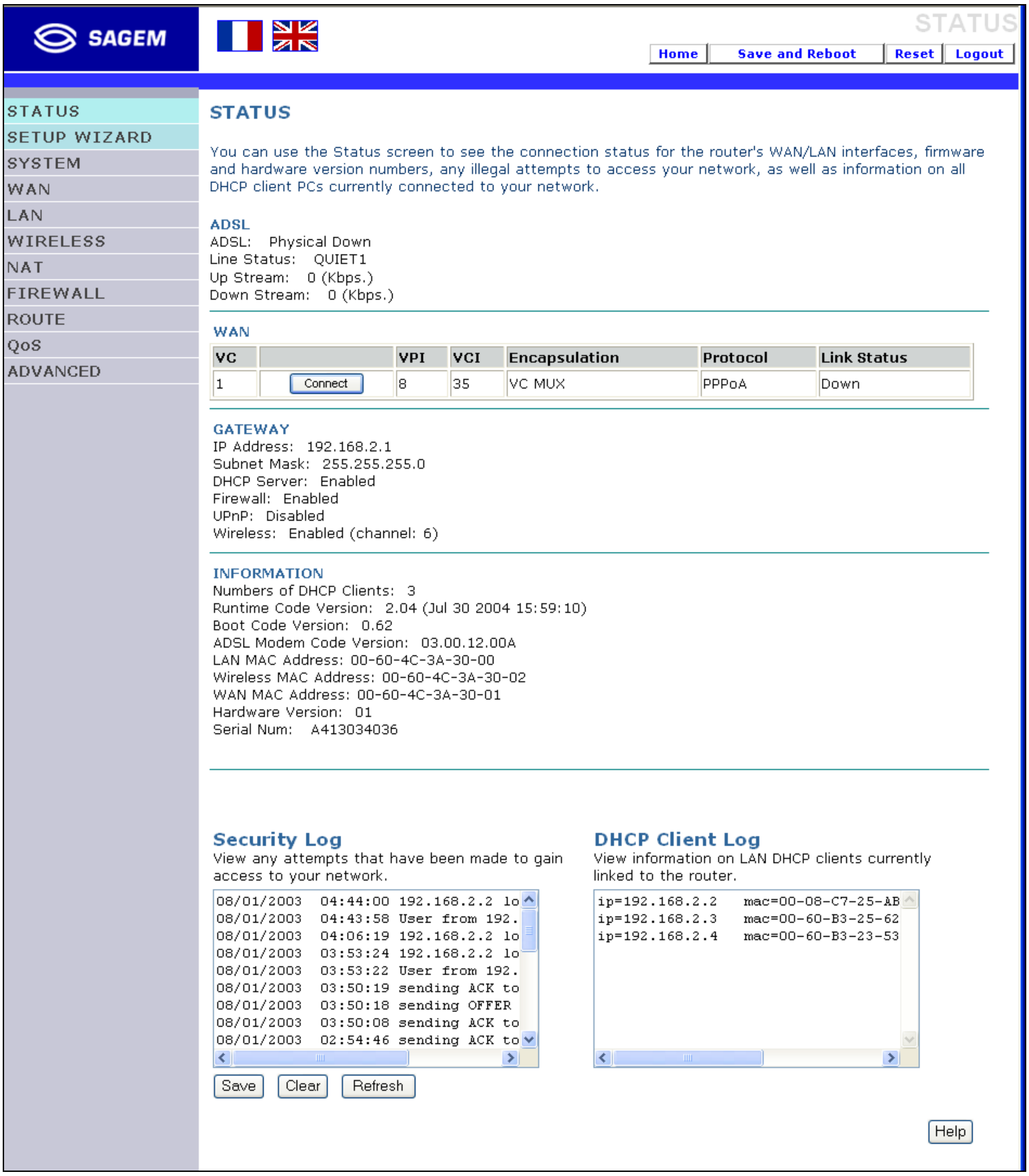
- **STATUS** (see section 4.1),
- **SETUP WIZARD** (see section 4.2),
- **SYSTEM** (see section 4.3),
- **WAN** (see section 4.4),
- **LAN** (see section 4.5),
- **WIRELESS** (see section 4.6),
- **NAT** (see section 4.7),
- **FIREWALL** (see section 4.8),
- **ROUTE** (see section 4.9),
- **QoS** (see section 4.10),
- **ADVANCED** (see section 4.11).

On tne Home screen, you can choose the language in which you want to configure your modem by clicking the appropriate flag (French or english).

## 4.1 STATUS

The Status page displays WAN/LAN connection status, firmware, and hardware version numbers, illegal attempts to access your network, as well as information on DHCP clients connected to your network. The security log may be saved to a file by clicking the Save button and choosing a location.

Scroll down to view more information on the **STATUS** page.



The following items are included on the Status page:

| Item | Description |
|---|---|
| **INTERNET** | Displays WAN connection type and status. Click the Connect button to connect to your ISP. |
| **VC** | Displays your VC settings and its status. Click on the Connect button to establish the VC's connection, click on the Disconnect button to stop it. |
| **GATEWAY** | Displays system IP settings, as well as DHCP Server and Firewall status. |
| **INFORMATION** | Displays the number of attached clients, the firmware versions, the physical MAC address for each media interface, and for the SAGEM F@st™ 1500 ADSL Router, as well as the hardware version and serial number. |
| **Security Log** | Displays illegal attempts to access your network. Save Click on this button to save the security log file. Clear Click on this button to delete the access log. Refresh Click on this button to refresh the screen. |
| **DHCP Client Log** | Displays information on DHCP clients on your network. |

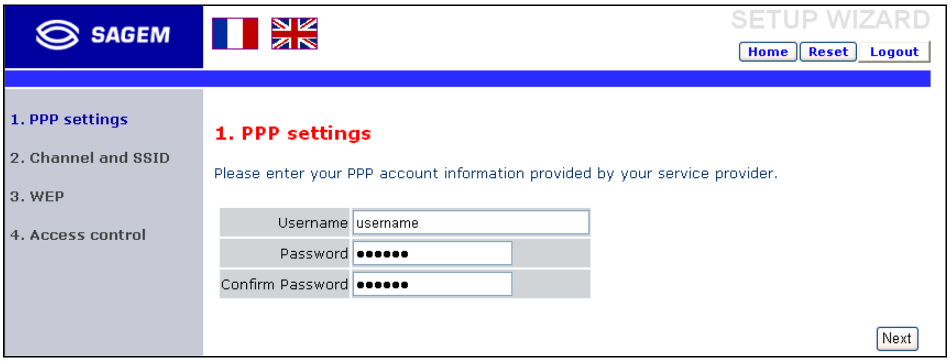
| | |
|---|---|
| Clear | In the **Security Log** field, click on this button to clear all the events from the Security Log. |
| Refresh | In the **Security Log** field, click on this button to refresh all the events from the Security Log. |

## 4.2 "SETUP WIZARD" menu

In this menu is included the following sub-menus:

- PPP setting (see section 4.2.1),
- Channel and SSID (see section 4.2.2),
- WEP (see section 4.2.3),
- Access control (see section 4.2.4).

### 4.2.1 PPP Setting




Enter the PPPoA (Point-to-Point Protocol over ATM) settings provided by your ISP.

| Parameter | Description |
|---|---|
| **Username** | Enter the ISP assigned user name |
| **Password** | Enter your password |
| **Confirm Password** | Confirm your password |

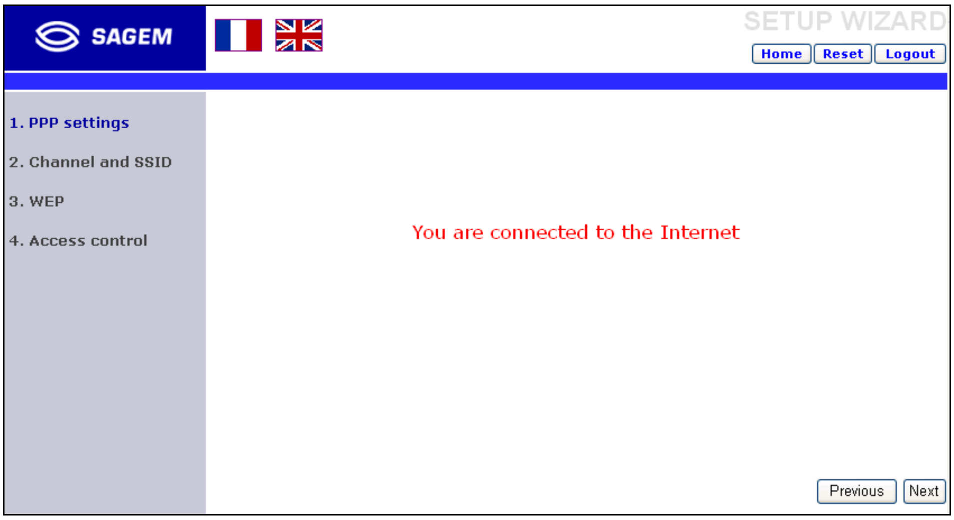
This will automatically configure the SAGEM F@st™ 1500 ADSL Router with the correct Protocol, Encapsulation and VPI/VCI settings for your ISP.

Click "**Next**", the router will try to connect to the Internet.



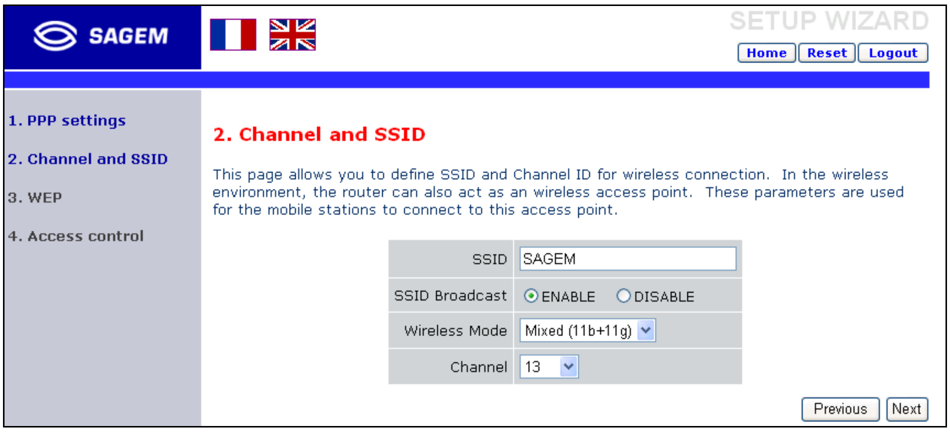

 

Once the ADSL Router has been connected to the Internet, you get the following message:




## 4.2.2 Channel and SSID

Now, you can start the wireless configuration.

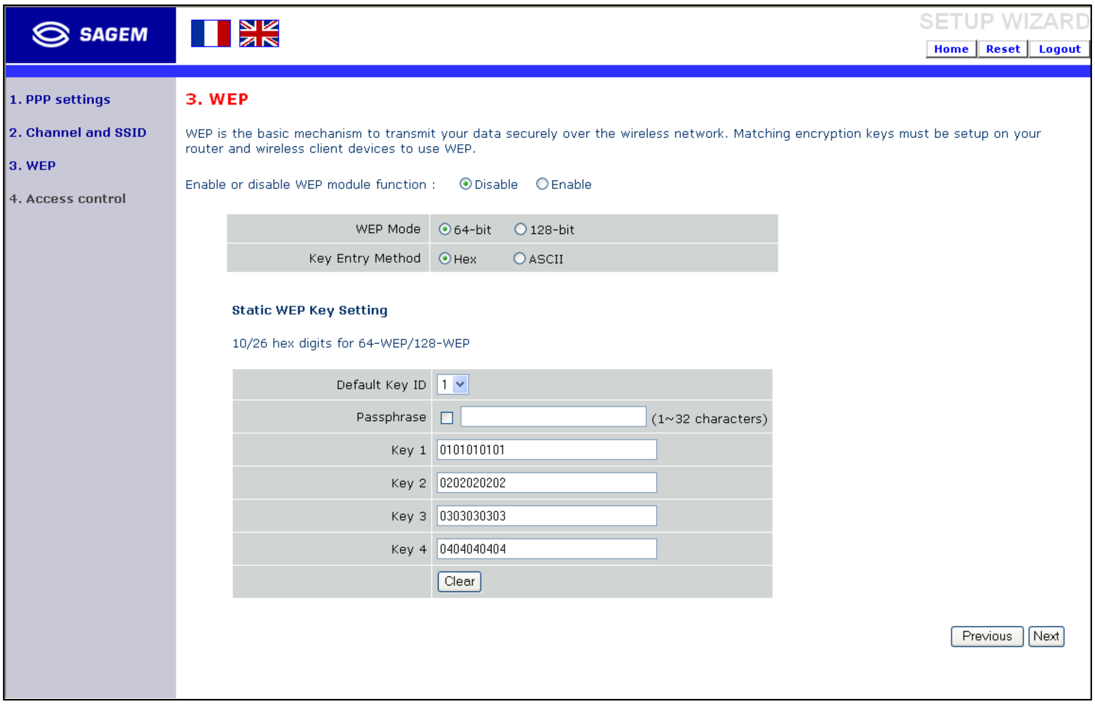



You must specify a common radio channel and SSID (Service Set ID) to be used by the SAGEM F@st™ 1500 ADSL Router and all of its wireless clients. Be sure you configure all of its clients to the same values.

| Parameter | Description |
|---|---|
| **ESSID** | Extended Service Set ID. The ESSID must be the same on the SAGEM F@st™ 1500 ADSL Router and all of its wireless clients. |
| **ESSID Broadcast** | Enable or disable the broadcasting of the SSID. |
| **Wireless Mode** | This device supports both 802.11g and 802.11b wireless networks. Make your selection depending on the type of wireless network that you have. |
| **Channel** | The radio channel used by the wireless router and its clients to communicate with each other. This channel number must be the same on the ADSL Router and all of its wireless clients. |

## 4.2.3 WEP

To make your wireless network safe, you should turn on the security function.




| Parameter | Description |
|---|---|
| WEP module function | Select **Disable** or **Enable** key to use or not WEP module function.<br>**Remark:** It is advised to select the **Enable** key. |
| WEP Mode | Select **64 bit** or **128 bit** key to use for encryption. |
| Key Entry Method | Select **Hex** or **ASCII** key to use a Key Entry Method (Hexadecimal or ASCII). |

To validate the WEP security protection, you should to set the same parameters for the SAGEM F@st™ 1500 ADSL Router and all your wireless clients.

You may automatically generate encryption keys or manually enter the keys. To generate the key automatically with passphrase, check the Passphrase box, enter a string of characters. Select the default key from the drop down menu. Click "**Next** ".

The passphrase can consist of up to 32 alphanumeric characters. To manually configure the encryption key, enter five hexadecimal pairs of digits for each 64-bit key, or enter 13 pairs for the single 128-bit key (A hexadecimal digit is a number or letter in the range 0-9 or A-F.). Note that WEP protects data transmitted between wireless nodes, but does not protect any transmissions over your wired network or over the Internet.

## 4.2.4 Access Control

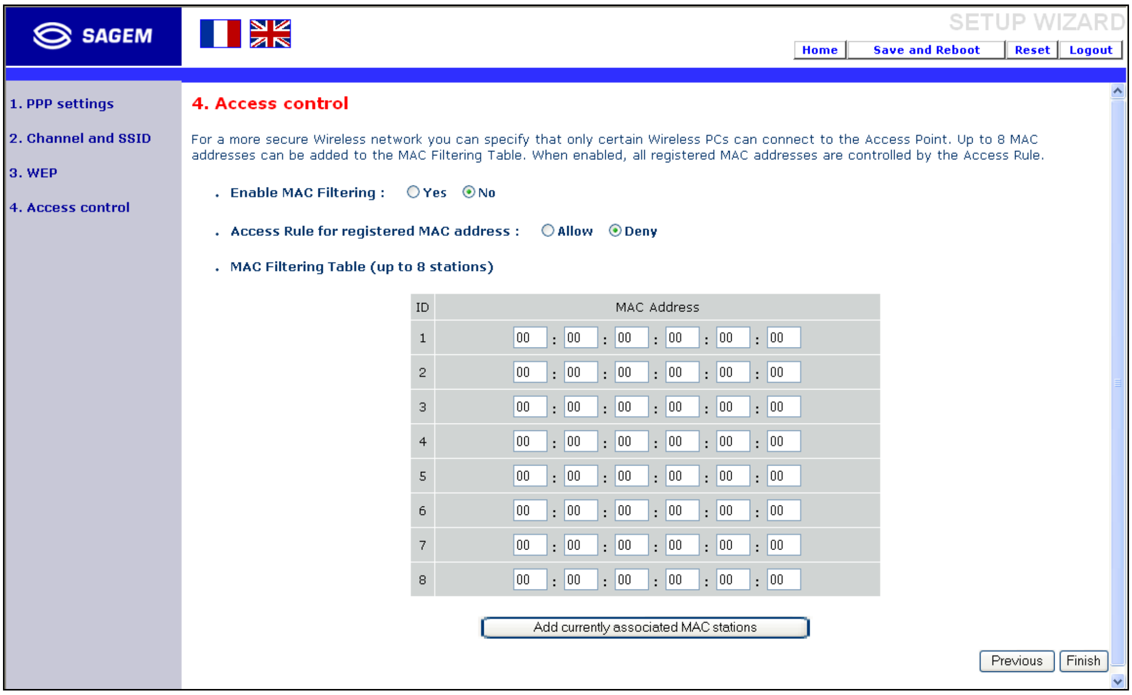
Access Control allows users to define the outgoing traffic permitted or not-permitted through the Wi-Fi interface. The default is to permit all outgoing traffic.

The following items are on the Access Control screen:

- Click **Yes** to turn on the filtering function, or **No** to disable this function.

If you have enabled this function, you can enter the client MAC addresses that you want to filter.

You can give up to 32 client stations.




Once you have done your settings, click “Finish” to save these settings and quit the Setup Wizard.

Your SAGEM F@st™ 1500 ADSL Router is now set up. Go to “Troubleshooting” on Appendice A, if you cannot make a connection to the Internet.

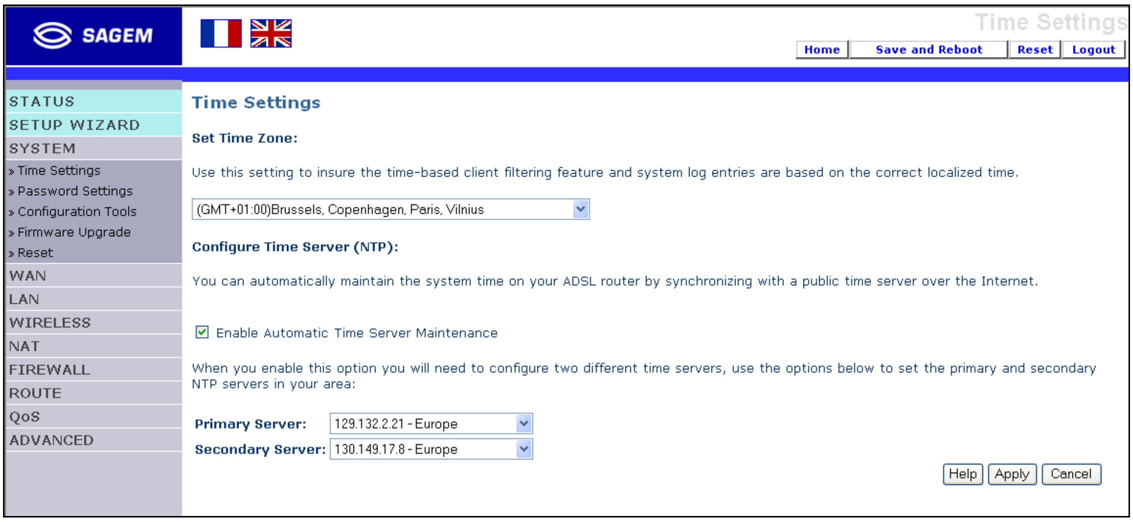
## 4.3 SYSTEM

In this menu is included the following sub-menus:

- Time setting (see section 4.3.1),
- Password setting and SSID (see section 4.3.2),
- Configuration tools (see section 4.3.3),
- Firware upgrade (see section 4.3.4),
- Reset (see section 4.3.5).

### 4.3.1 Time Settings

Select your local time zone from the drop down list. This information is used for log entries and client filtering.

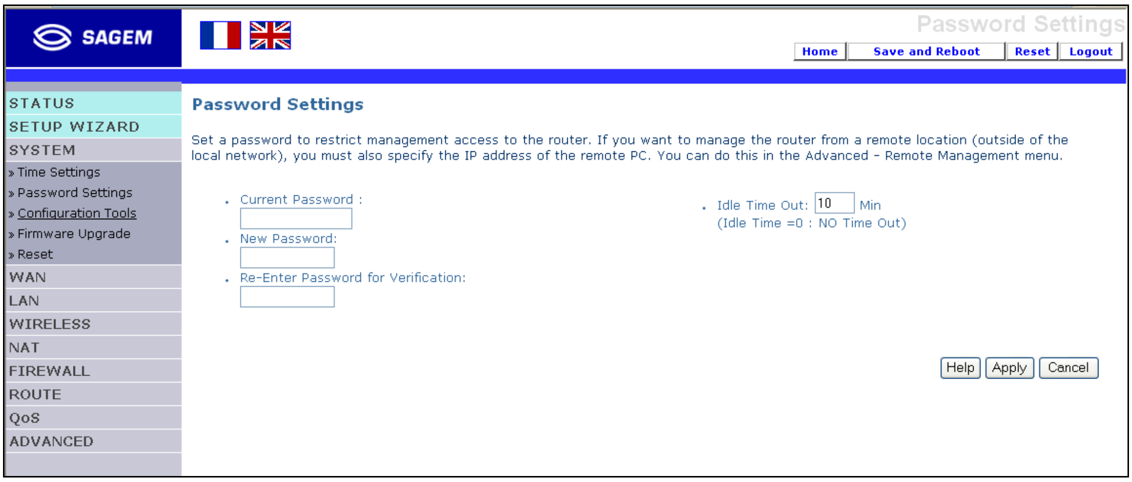



For accurate timing of log entries and system events, you need to set the time zone. Select your time zone from the drop down list. If you want to automatically synchronize the SAGEM F@st™ 1500 ADSL Router with a public time server, check the box to Enable Automatic Time Server Maintenance. Select the desired servers from the drop down menu.

## 4.3.2 Password Settings

Use this page to change the password for accessing the management interface of the SAGEM F@st™ 1500 ADSL Router. Passwords can contain from 3 to 12 alphanumeric characters and are case sensitive.

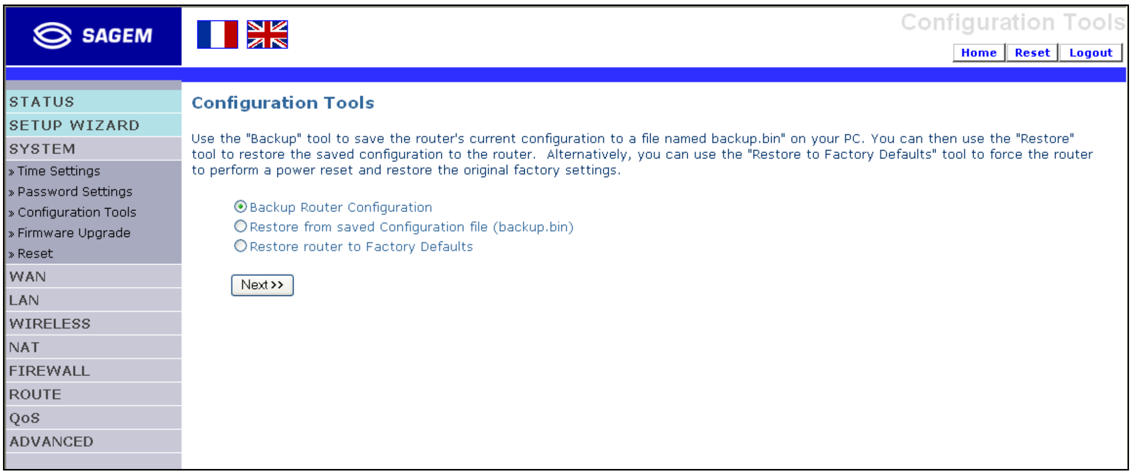



If you lost the password, or you cannot gain access to the user interface, press the blue reset button on the rear panel, holding it down for at least five seconds to restore the factory defaults. The default password is “**empty**”.

Enter a maximum Idle Time Out (in minutes) to define a maximum period of time for which the login session is maintained during inactivity. If the connection is inactive for longer than the maximum idle time, it will perform system logout, and you have to log in again to access the management interface. The default timeout is fixed to 10 minutes.

## 4.3.3 Configuration tools

Use the Tools menu to backup the current configuration, restore a previously saved configuration, restore factory settings, update firmware, and reset the SAGEM F@st™ 1500 ADSL Router.




Choose a function and click Next. Backup allows you to save the SAGEM F@st™ 1500 ADSL Router's configuration to a file.

Restore can be used to restore the saved backup configuration file. Restore to Factory Defaults resets the SAGEM F@st™ 1500 ADSL Router to the original settings.

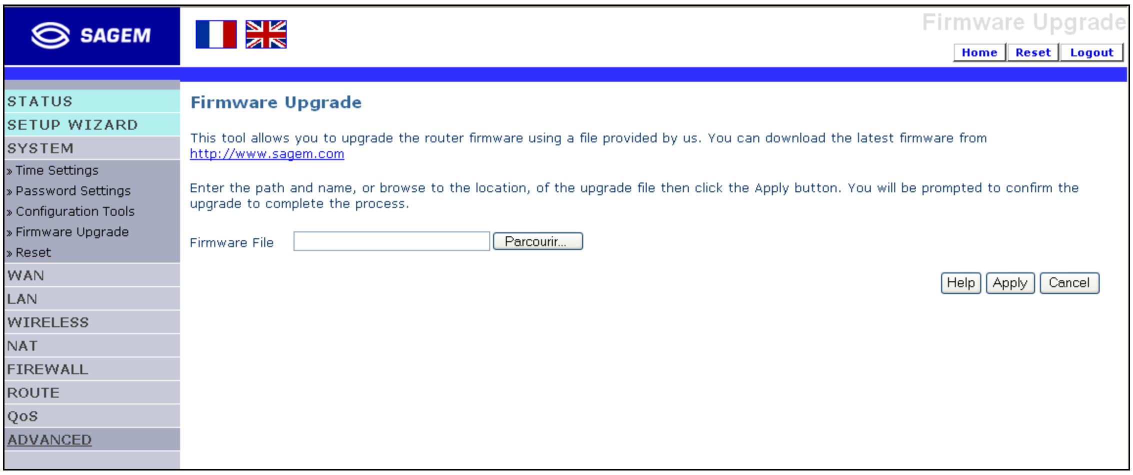
You will be asked to confirm your decision.

## 4.3.4 Firmware Upgrade

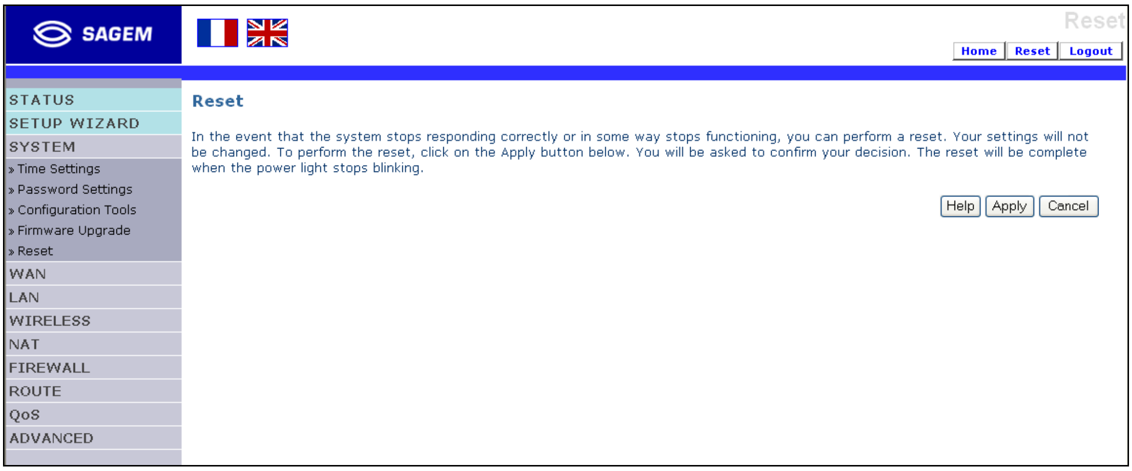
Use this screen to update the firmware or user interface to the latest versions. Download the upgrade file from the Sagem web site, and save it to your hard drive. In the Upgrade Target field, choose Firmware. Then **click "Browse..."** to look for the downloaded file. Click "**Apply**".

Check the Status page Information section to confirm that the upgrade process was successful.




## 4.3.5 Reset

Click "REBOOT ROUTER" to reset the SAGEM F@st™ 1500 ADSL Router. The reset will be completed when the power LED stops blinking.




If you perform a reset from this page, the configurations will not be changed back to the factory default settings.

If you use the Reset button on the front panel, the SAGEM F@st™ 1500 ADSL Router performs a power reset. If the button is depressed for over five seconds, all the LEDs will be lighted and the factory settings will be restored.

## 4.4 "WAN" menu

Specify the WAN connection parameters provided by your Internet Service Provider (ISP).

The SAGEM F@st™ 1500 ADSL Router can be connected to your ISP in one of the following ways:

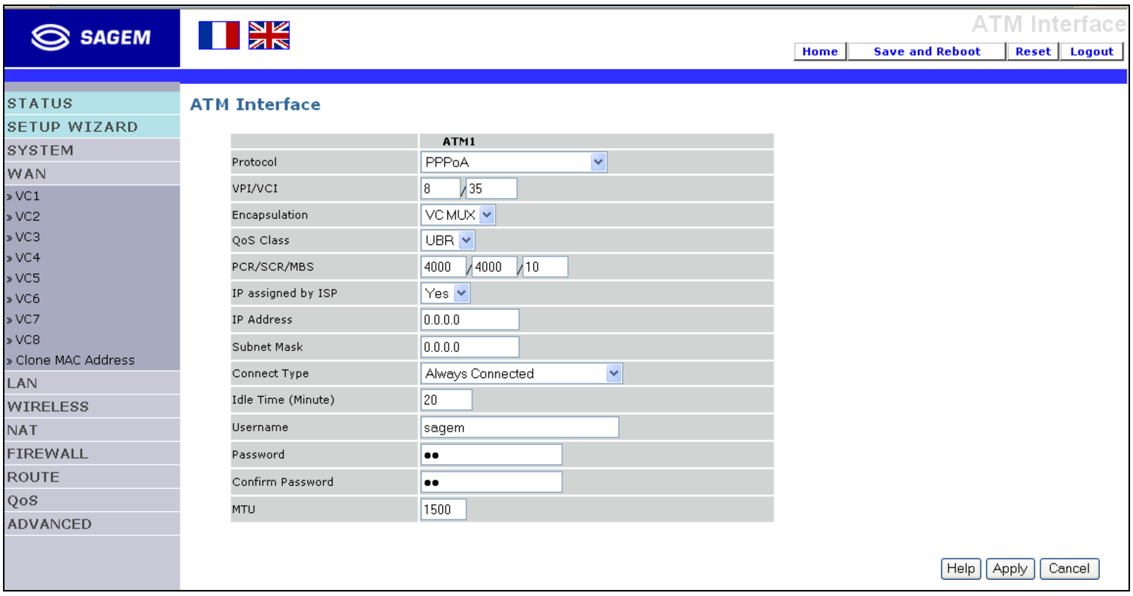
- ATM PVC (see section 4.4.1),
- Clone MAC (see section 4.4.2).



## 4.4.1 ATM PVC

Enter **ATM** (**A**synchronous **T**ransfer **M**ode) function parameters here.




| Parameter | Description | |
|---|---|---|
| **Protocol** | • **Disable** | Disables the ATM mode. |
| | • **1483 Bridging** | Bridging: Bridging is a standardized layer 2 technology. It is typically used in corporate networks to extend the physical reach of a single LAN segment and increase the number of stations on a LAN without compromising performance. Bridged data is encapsulated using the RFC1483 protocol to enable data transport. |
| | • **PPPoA:** | Point-to-Point over ATM |
| | • **1483 Routing** | Use 1483 Routing protocol. |
| | • **PPPoE** | Point-to-Point over Ethernet. |
| | • **MAC Encapsulated Routing** | MAC Encapsulated Routing |
| **VPI/VCI** | Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI).Each connection must have a unique pair of VPI/VCI settings. | |
| **Encapsulation** | Specifies how to handle multiple protocols at the ATM transport layer. | |
| | • **VC-MUX** | Point-to-Point Protocol over ATM Virtual Circuit Multiplexer (null encapsulation) allows only one protocol running per virtual circuit with less overhead. |
| | • **LLC** | Point-to-Point Protocol over ATM Logical Link Control (LLC) allows multiple protocols running over one virtual circuit (using slightly more overhead). |
| **QoS** | • **CBR** | **C**onstant **B**it **R**ate. It is used for voice application. |
| | • **VBR** | **V**ariable **B**it **R**ate. It is used for video application. |
| | • **UBR** | **U**nspecified **B**it **R**ate. It is used in Best Effort for IP and Ethernet (for Data Application) |
| **PCR/SCR/MBS** | • **PCR** | **P**eak **C**ell **R**ate. |
| | • **SCR** | **S**ustainable **C**ell **R**ate. |
| | • **MBS** | **M**aximum **B**urst **S**ize. |

| | | |
|---|---|---|
| **IP assigned by ISP** | Click **Yes** or **No** to assign or no IP address to your ISP | |
| **IP Address** | IP address of the ATM interface. | |
| **Subnet Mask** | Subnet mask of the ATM interface. | |
| **Connect Type** | • Always connected | Your router is always connected to the WAN (automatic mode). |
| | • Auto - Triggered by traffic | Your router only connect to WAN when traffic is on (automatic mode). |
| | •Manual - Start in Disconnected | When your router start, this is disconnected to WAN (Manual mode). |
| | • Manual - Start in Disconnected | When your router start, this is connected to WAN (Manual mode). |
| | • Manual - Start in Last State | When your router start, this connect to WAN in last stated (Manual mode). |
| **Idle Time (Minute)** | Enter the maximum idle time for the Internet connection. After this time has been exceeded the connection will be terminated. | |
| **Username** | In the field it appears the username that you entered during the SETUP WIZARD menu | |
| **Password** | In the field it appears the Password that you entered during the SETUP WIZARD menu | |
| **Confirm Password** | In the field it appears the Confirm Password that you entered during the SETUP WIZARD menu | |
| **Confirm Password** | In the field it appears the Confirm Password that you entered during the SETUP WIZARD menu | |
| **MTU** | Specifies the maximum size of the payload data in IP packets as a number of bytes (1500 in general) | |

The following parameters only appear in "**Routed**" mode that you can select in the "Protocol" field:

| | |
|---|---|
| **Default Gateway** | Default gateway of the ATM interface. |
| **DHCP Client** | Check this box if your ISP assigns an IP to clients using DHCP. |

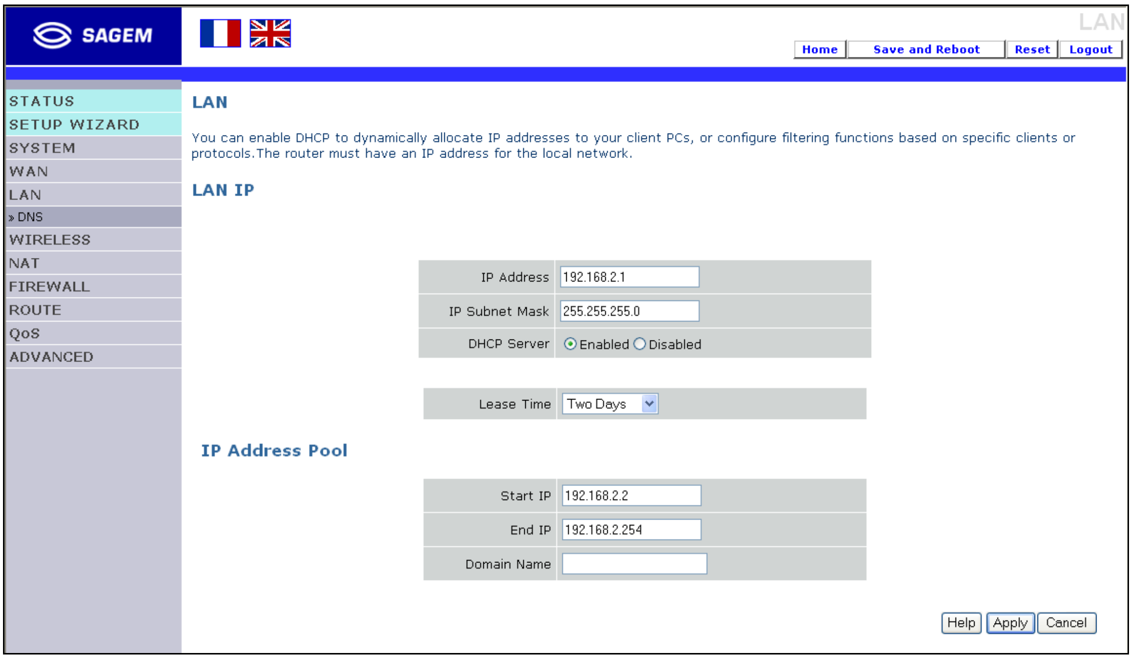
## 4.4.2 Clone MAC

Some ISPs require you to register your MAC address with them. If this is the case, the MAC address of the SAGEM F@st™ 1500 ADSL Router must be changed to the MAC address that you have registered with your ISP.



## 4.5 LAN

Use the LAN menu to configure the LAN IP address and to enable the DHCP server for dynamic client address allocation.




| Parameter | Description |
|---|---|
| **LAN IP** | |
| **IP Address** | The IP address of the SAGEM F@st™ 1500 ADSL Router. |
| **IP Subnet Mask** | The subnet mask of the network. |
| **DHCP Server** | The SAGEM F@st™ 1500 ADSL Router comes with the DHCP function. To dynamically assign an IP address to client PCs, enable this function. |
| **Lease Time** | Set the IP lease time. For home networks this may be set to Forever, which means there is no time limit on the IP address lease. |
| **IP Address Pool** | |
| **Start IP** | Specify the start IP address of the DHCP pool. Do not include the gateway address of the SAGEM F@st™ 1500 ADSL Router in the client address pool. If you change the pool range, make sure the first three octets match the gateway's IP address, i.e., 192.168.2.xxx |
| **End IP** | Specify the end IP address of the DHCP pool. |
| **Domain Name** | If your network uses a domain name, enter it here. Otherwise, leave this field blank. |

Remember to configure your client PCs for dynamic address allocation
(See section **3.1** for details).

In this menu is included the following sub-menu:

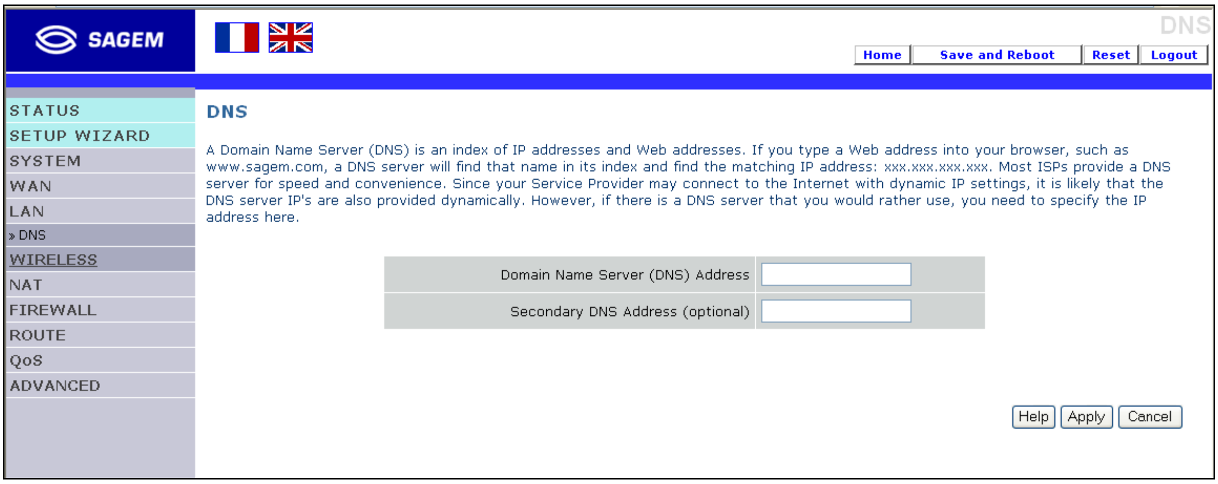
- DNS (see section 4.5.1).

## 4.5.1 DNS

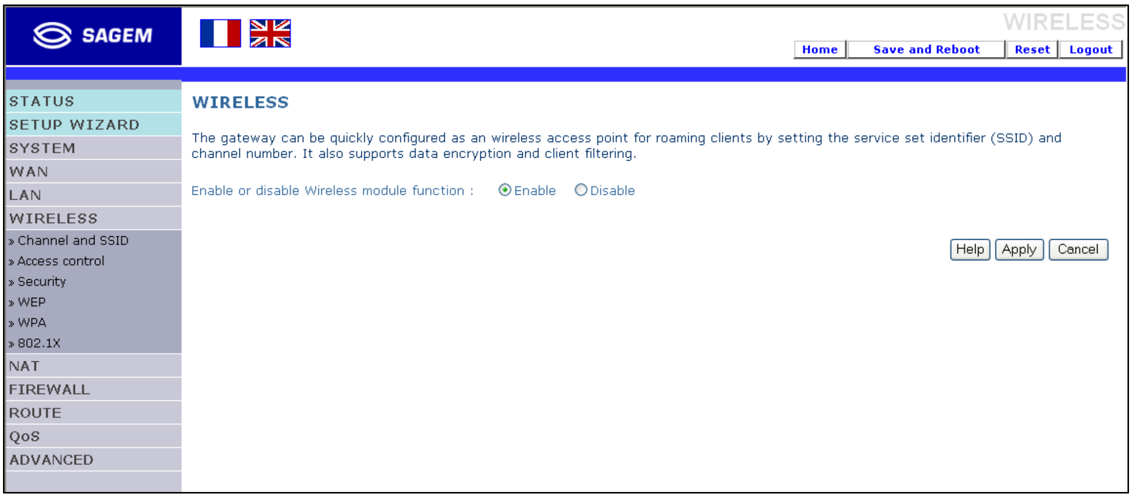
Domain Name Servers (DNS) are used to map a domain name (e.g., www.sagem.com) with the IP address (e.g., **212.234.211.50**). Your ISP should provide the IP address of one or more Domain Name Servers.

Enter those addresses on this page, and click “**Apply**”.



## 4.6 Wireless

The SAGEM F@st™ 1500 ADSL Router also operates as a wireless access point, allowing wireless computers to communicate with each other. To configure this function, all you need to do is enable the wireless function, define the radio channel, the domain identifier, and the security options. Check **Enable** and click “**Apply**".



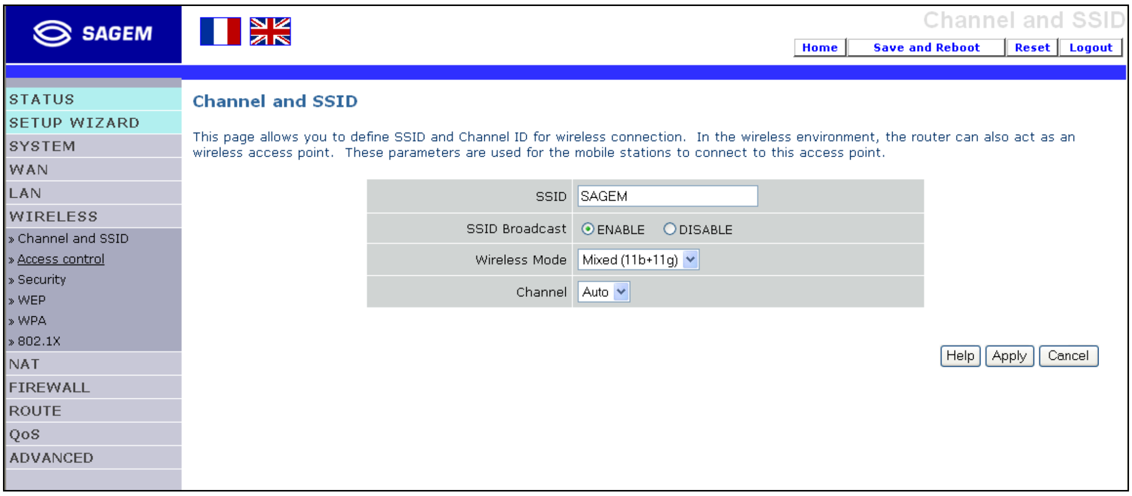

In this menu is included the following sub-menus:

- Channel and SSID (see section 4.6.1),
- Access control (see section 4.6.2),
- Security (see section 4.6.3),
- WEP (see section 4.6.4),
- WPA setting (see section 4.6.5),
- 802.x (see section 4.6.6).

## 4.6.1 Channel and SSID

You must specify a common radio channel and SSID (Service Set ID) to be used by the SAGEM F@st™ 1500 ADSL Router and all of its wireless clients. Be sure you configure all of its clients to the same values.

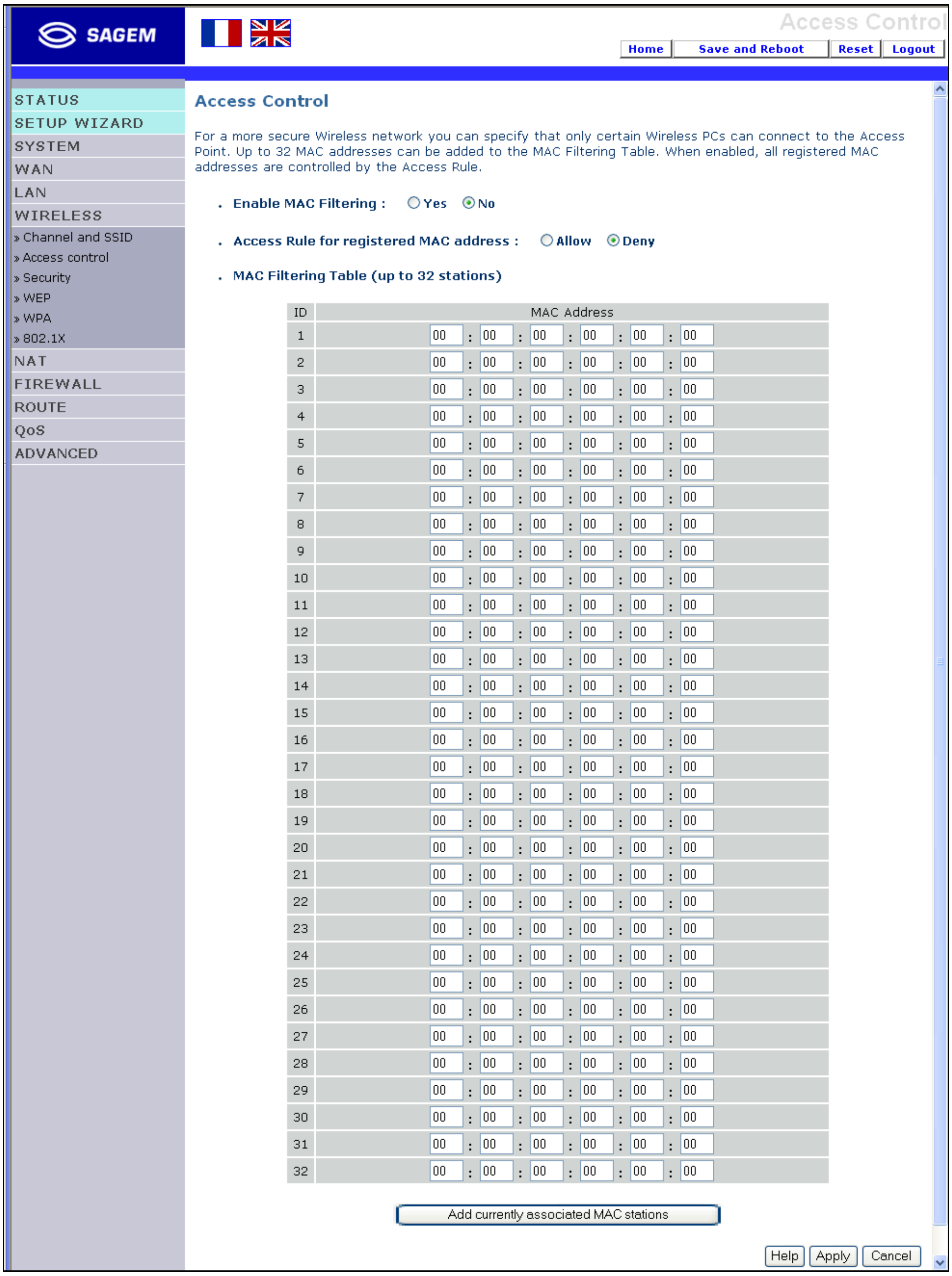



| Parameter | Description |
|---|---|
| **SSID** | Service Set ID. The ESSID must be the same on the SAGEM F@st™ 1500 ADSL Router and all of its wireless clients. |
| **SSID Broadcast** | Enable or disable the broadcasting of the SSID. |
| **Wireless Mode** | This device supports both 11g and 11b wireless networks. Make your selection depending on the type of wireless network that you have. |
| **Channel** | The radio channel used by the wireless router and its clients to communicate with each other. This channel number must be the same on the ADSL Router and all of its wireless clients. |

## 4.6.2 Access Control

Access Control allows users to define the outgoing traffic permitted or not-permitted through the Wi-Fi interface. The default is to permit all outgoing traffic.

The following items are on the Access Control screen:




Click **Yes** to turn on the filtering function, or **No** to disable this function.

If you have enabled this function, you can enter the client MAC addresses that you want to filter. (You can give up to 32 client stations).

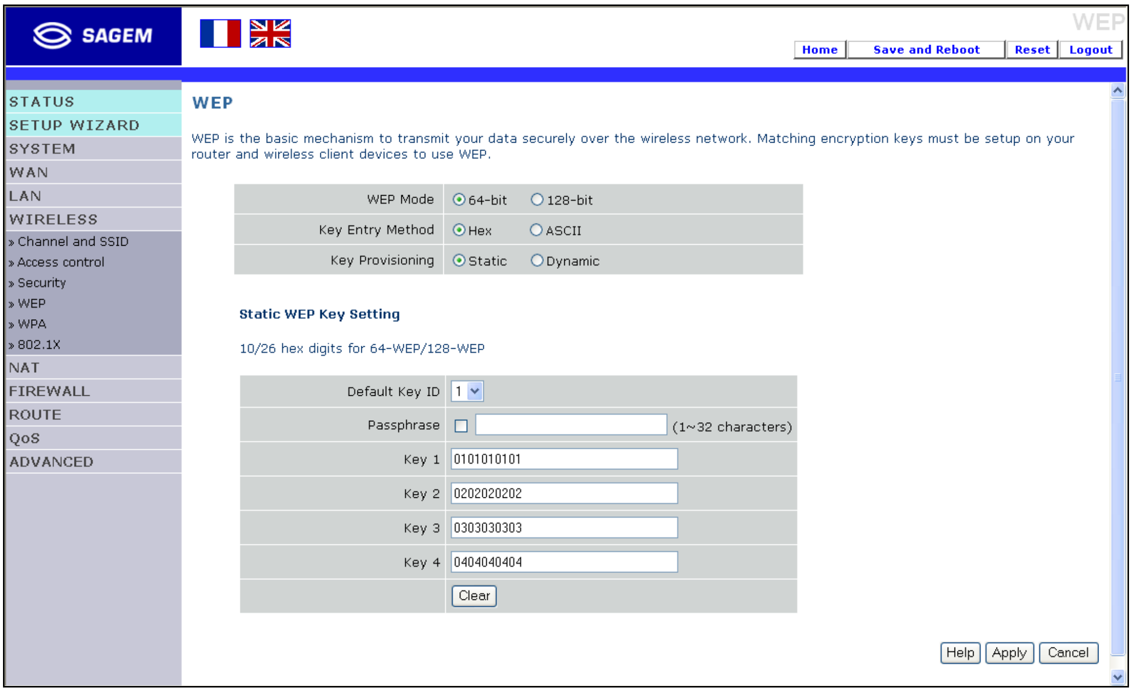
## 4.6.3 Security

To make your wireless network safe, you should turn on the security function. The SAGEM F@st™ 1500 ADSL Router supports WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected), and 802.1x security mechanisms.



## 4.6.4 WEP

If you want to use WEP to protect your wireless network, you need to set the same parameters for the SAGEM F@st™ 1500 ADSL Router and all your wireless clients.




| Parameter | Description |
|---|---|
| **WEP Mode Key Provisioning** | Select 64 bit or 128 bit key to use for encryption. |
| | Select Static if there is only one fixed key for encryption. If you want to select Dynamic, you would need to enable 802.1x function first. |

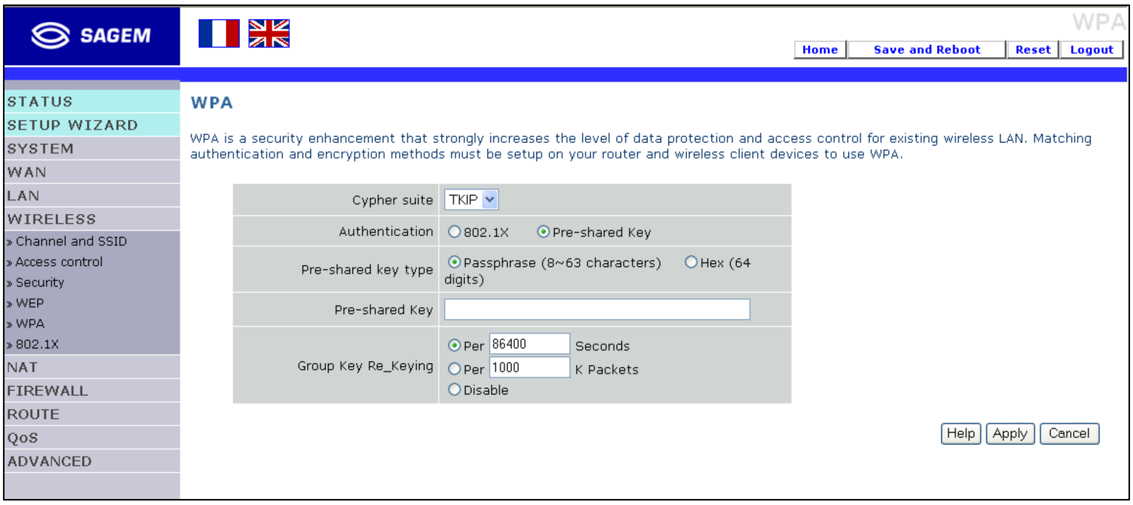
You may automatically generate encryption keys or manually enter the keys. To generate the key automatically with passphrase, check the Passphrase box, enter a string of characters. Select the default key from the drop down menu. Click “**Apply**”.

The passphrase can consist of up to 32 alphanumeric characters. To manually configure the encryption key, enter five hexadecimal pairs of digits for each 64-bit key, or enter 13 pairs for the single 128-bit key (A hexadecimal digit is a number or letter in the range 0-9 or A-F). Note that WEP protects data transmitted between wireless nodes, but does not protect any transmissions over your wired network or over the InternetSAGEM @st™ 1500 ADSL Router using Internet Explorer 5.0 or above.

## 4.6.5 WPA

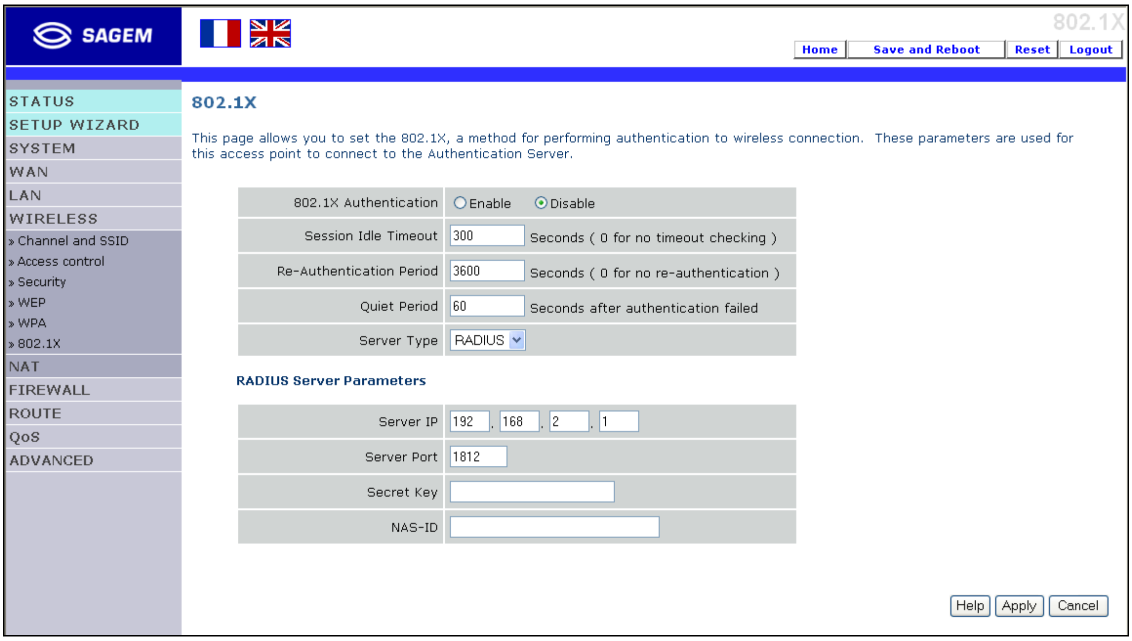
**W**i-Fi **P**rotected **A**ccess (**WPA**) combines **T**emporal **K**ey **I**ntegrity **P**rotocol (**TKIP**) and 802.1x mechanisms. It provides dynamic key encryption and 802.1x authentication service.




| Parameter | Description | |
|---|---|---|
| **Cypher suite** | The security mechanism used in **WPA** for encryption. | |
| **Authentication** | Choose **802.1X** or Pre-shared Key to use as the authentication method. | |
| | **•802.1X:** | for the enterprise network with a RADIUS server. |
| | **•Pre-shared key** | for the SOHO network environment without an authentication server. |
| **Pre-shared key type** | Select the key type to be used in the Pre-shared Key. | |
| **Pre-shared Key** | Type in the key here. | |
| **Group Key Re-Keying** | The period of renewing broadcast/multicast key. | |

## 4.6.6 802.1X

If 802.1X is used in your network, then you should enable this function for the SAGEM F@st™ 1500 ADSL Router.

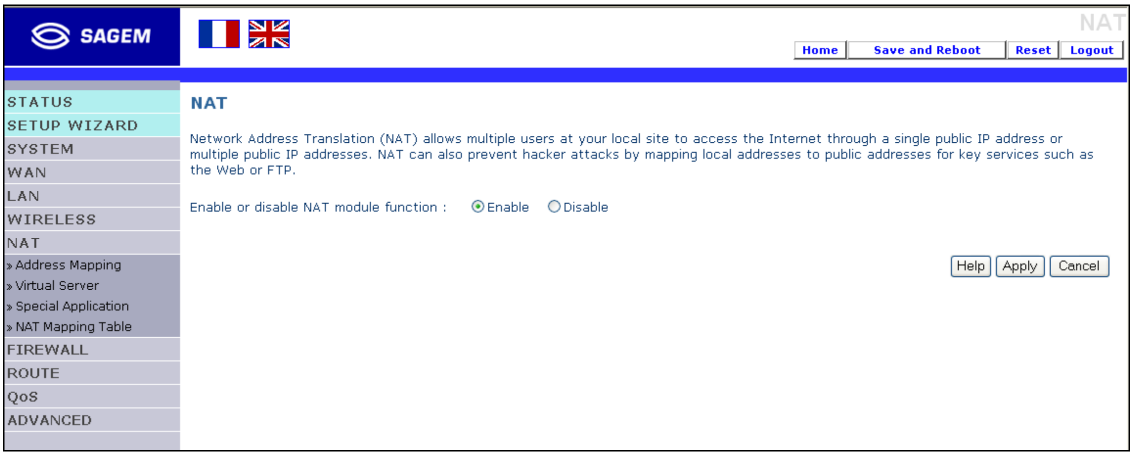


| Parameter | Description |
|---|---|
| **802.1X** | |
| **802.1X Authentication** | Enable or disable this authentication function. |
| **Session Idle timeout** | Defines a maximum period of time for which the connection is maintained during inactivity. |
| **Re-Authentication Period** | Defines a maximum period of time for which the authentication server will dynamically re-assign a session key to a connected client. |
| **Quiet Period** | Defines a maximum period of time for which the SAGEM F@st™ 1500 ADSL Router will wait between failed authentications. |
| **Server Type** | Select TINY or RADIUS as the authentication server. |
| **RADIUS Server Parameters** | |
| **Server IP** | The IP address of your authentication server. |
| **Server Port** | The port used for the authentication service. |
| **Secret Key** | The secret key shared between the authentication server and its clients. |
| **NAS-ID** | Defines the request identifier of the Network Access Server. |
| **TINY Server Users Profile (up to 10 users)** | The Tiny Encryption Algorithm is used to encrypt the password with a randomly generated number sent by the server. |
| **Index** | Check the box of the user you wish to modify. |
| **Username** | Defines the user name of clients. |
| **Password** | Set the single-use password for the clients. |
| **Re-Type Password** | Confirm your password. |
| **New** | Create a new Tiny service account. |
| **Clear** | Clear the profile settings. |

## 4.7 NAT

Network Address Translation allows multiple users to access the Internet sharing one public IP.



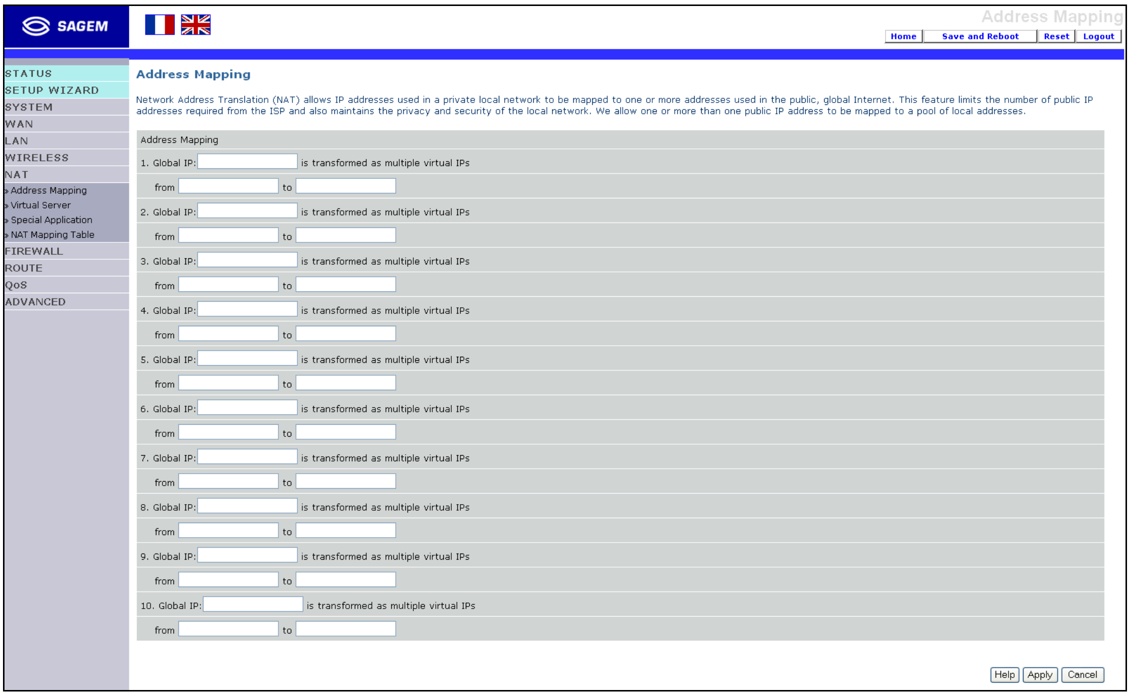

In this menu is included the following sub-menus:

- Address Mapping (see section 4.7.1),
- Virtual Server (see section 4.7.2),
- Special Application (see section 4.7.3),
- NAT Mapping Table (see section 4.7.4).

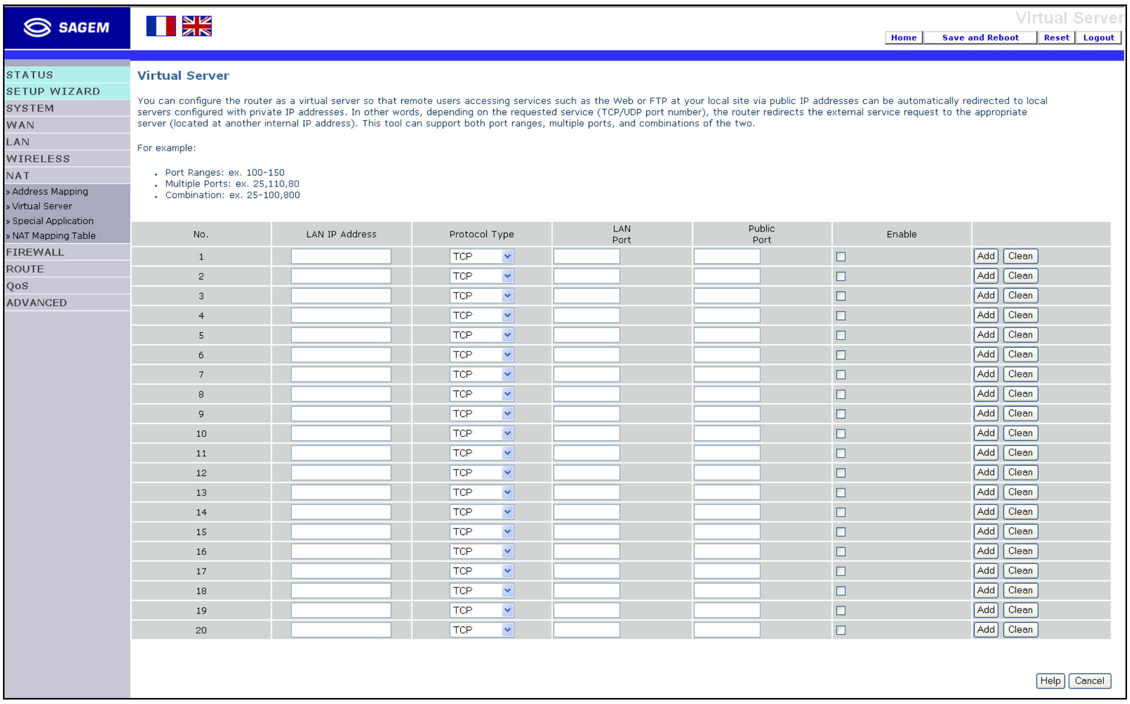
## 4.7.1 Address Mapping

This feature allows one or more public IP addresses to be shared by multiple internal users. This also hides the internal network for increased privacy and security. Enter the Public IP address you wish to share into the Global IP field. Enter a range of internal IPs that will share the global IP into the “from” field.



## 4.7.2 Virtual Server

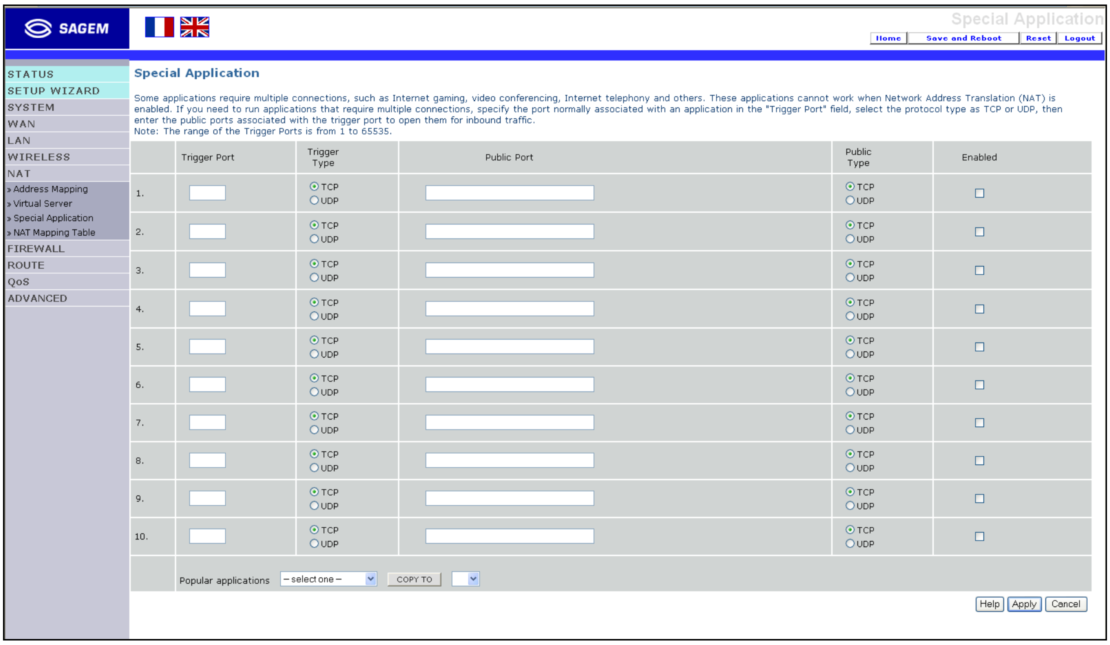
If you configure the SAGEM F@st™ 1500 ADSL Router as a virtual server, remote users accessing services such as web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port number), the SAGEM F@st™ 1500 ADSL Router redirects the external service request to the appropriate server (located at another internal IP address).



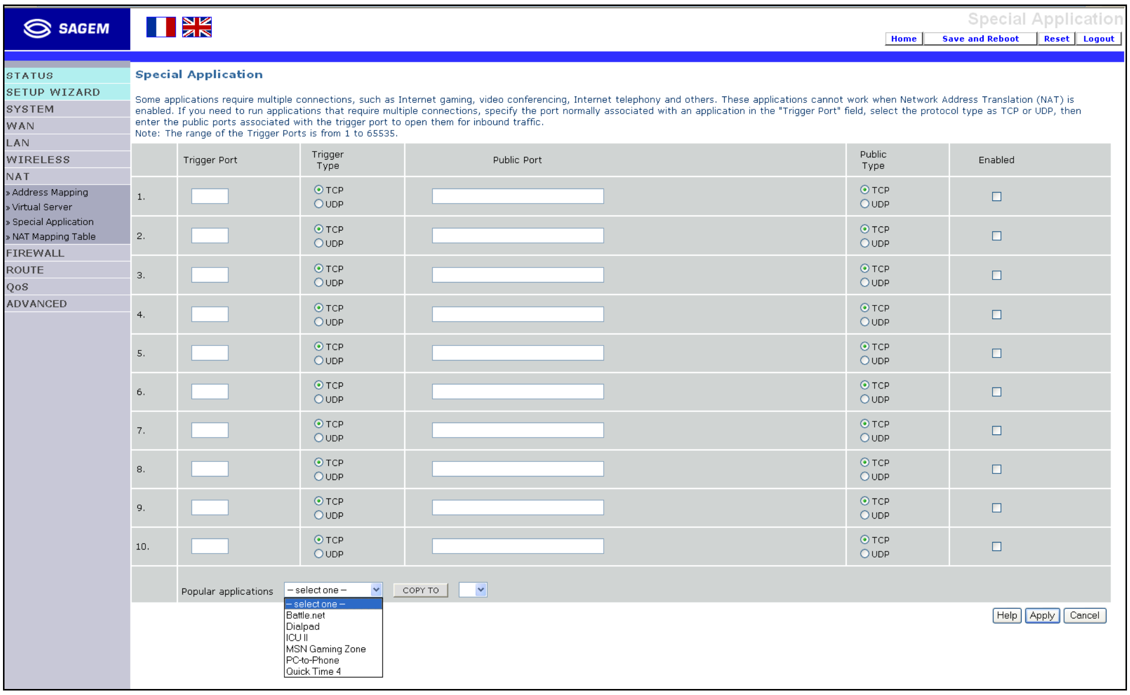

For example, if you set Type/Public Port to TCP/80 (HTTP or web) and the Private IP/Port to 192.168.2.2/80, then all HTTP requests from outside users will be transferred to 192.168.2.2 on port 80. Therefore, by just entering the IP address provided by the ISP, Internet users can access the service they need at the local address to which you redirect them. The more common TCP service ports include: HTTP: 80, FTP: 21, Telnet: 23, and POP3: 110. A list of ports is maintained at the following link: http://www.iana.org/assignments/port-numbers.

## 4.7.3 Special Application

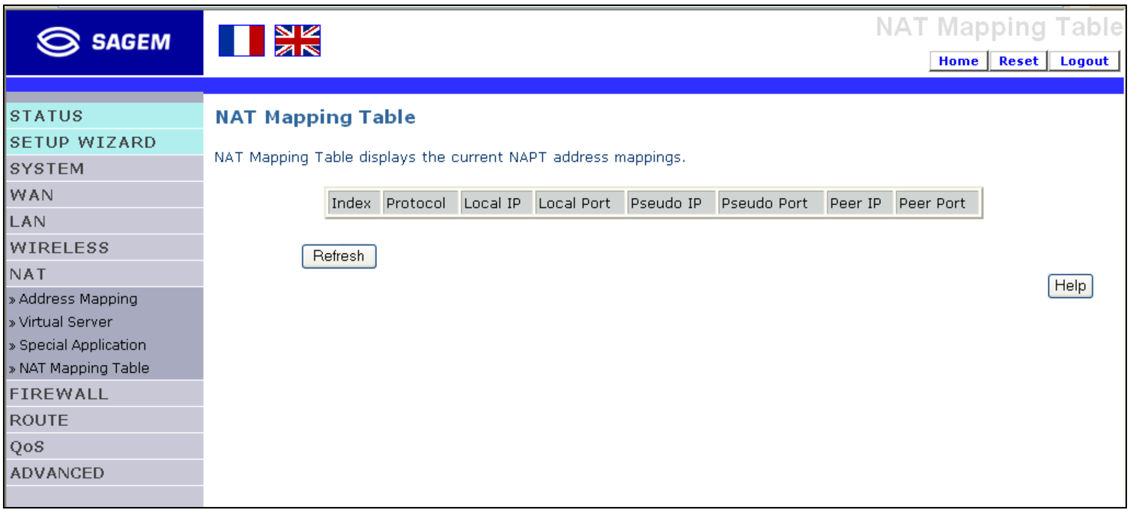



Some applications require multiple connections, such as Internet gaming, video-conferencing, and Internet telephony.




These applications may not work when **N**etwork **A**ddress **T**ranslation (**NAT**) is enabled. If you need to run applications that require multiple connections, use these pages to specify the additional public ports to be opened for each application.

## 4.7.4 NAT Mapping Table



## 4.8 Firewall

The SAGEM F@st™ 1500 ADSL Router's firewall inspects packets at the application layer, maintains TCP and UDP session information including time-outs and the number of active sessions, and provides the ability to detect and prevent certain types of network attacks.




Network attacks that deny access to a network device are called **D**enial-**of**-**S**ervice (**DoS**) attacks. DoS attacks are aimed at devices and networks with a connection to the Internet. Their goal is not to steal information, but to disable a device or network so users no longer have access to network resources.

The SAGEM F@st™ 1500 ADSL Router protects against the following DoS attacks: IP Spoofing, Land Attack, Ping of Death, IP with zero length, Smurf Attack, UDP port loopback, Snork Attack, TCP null scan, and TCP SYN flooding. (See section 4.8.5 for details).

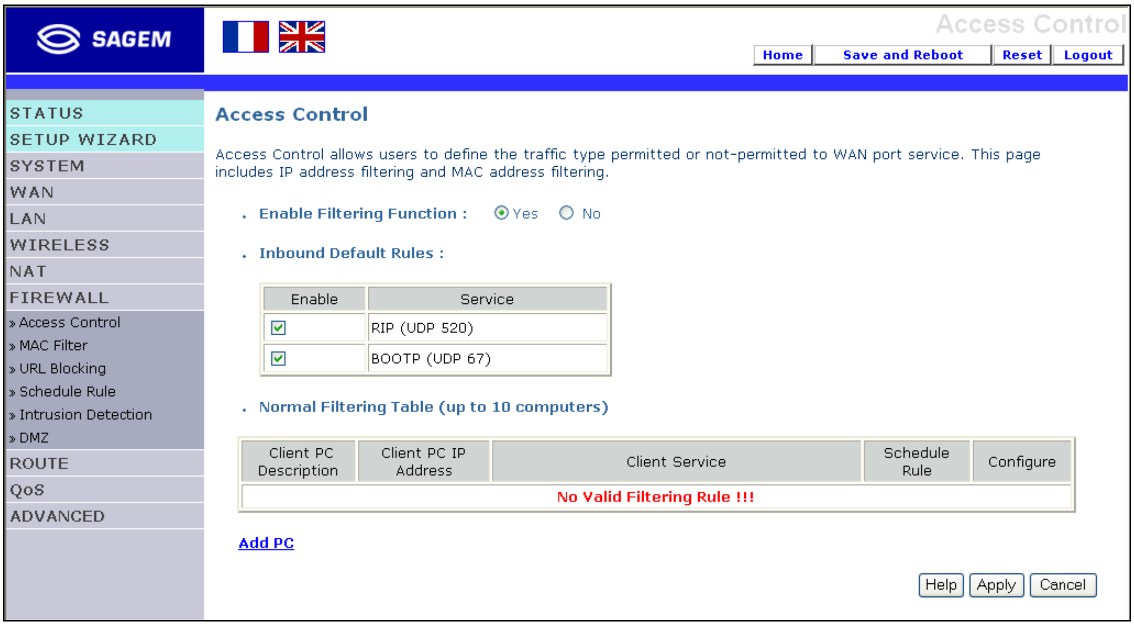
The firewall does not significantly affect system performance, so we advise leaving it enabled to protect your network. Select **Enable** and click the "**Apply**" to open the Firewall submenus.

In this menu is included the following sub-menus:

- Access Control (see section 4.8.1),
- MAC Filter (see section 4.8.2),
- URL Blocking (see section 4.8.3),
- Schedule Rule (see section 4.8.4),
- Intrusion Detection (see section 4.8.5),
- DMZ (see section 4.8.6).

## 4.8.1 Access Control

Access Control allows users to define the outgoing traffic permitted or not-permitted through the WAN interface. The default is to permit all outgoing traffic.




The following items are on the Access Control screen:

| Parameter | Description |
|---|---|
| **Enable Filtering Function** | Click **Yes** to turn on the filtering function. |
| **Normal Filtering Table** | Displays the IP address (or an IP address range) filtering table. |

To add the PC to the filtering table:

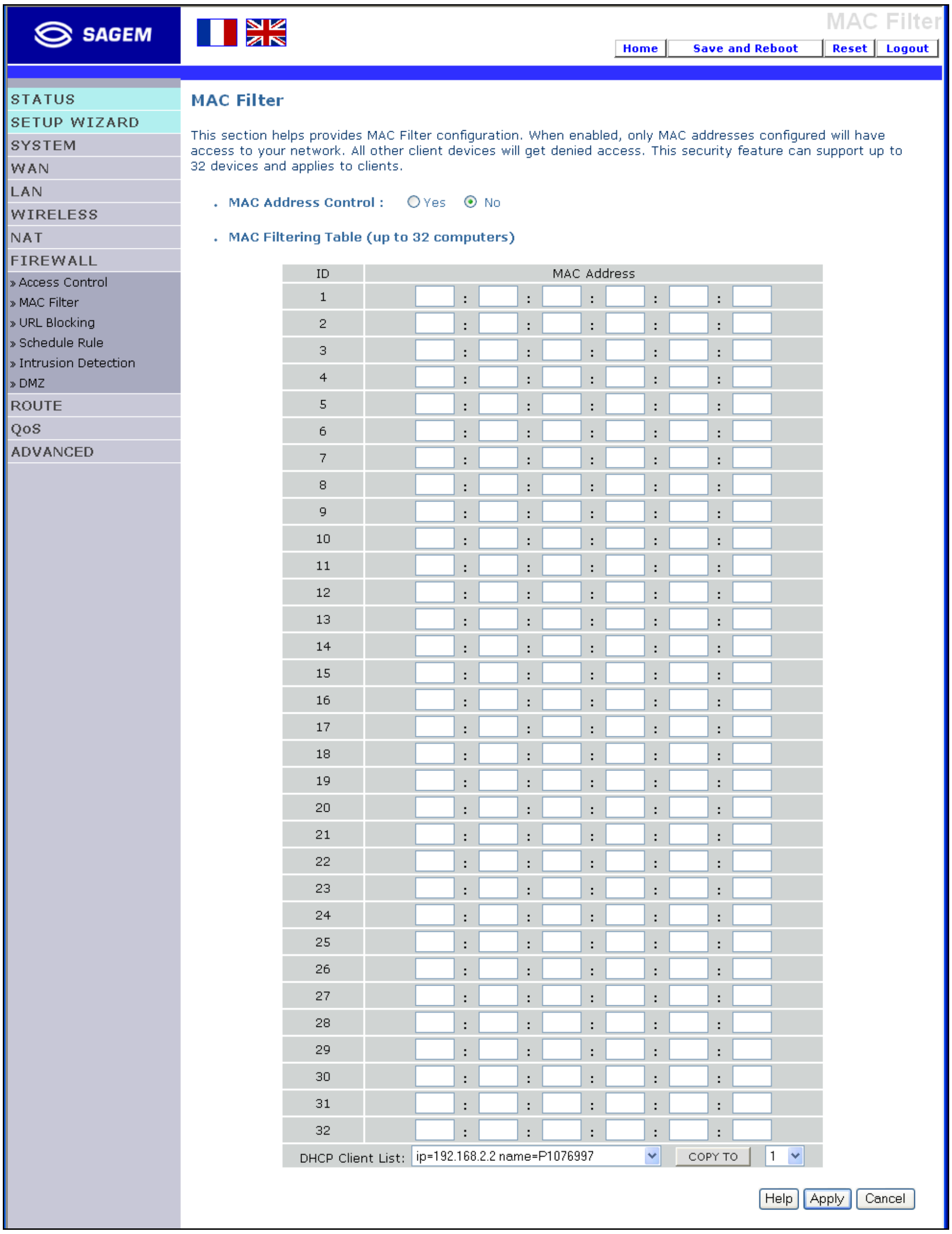
1) Click “**Add PC**” on the Access Control screen.
2) Define the appropriate settings for client PC services.
3) Click “**OK**” and then click “**SAVE SETTINGS**” to save your settings.


SAGEM
Access Control Add PC
Home
Save and Reboot
Reset
Logout
STATUS
SETUP WIZARD
SYSTEM
WAN
LAN
WIRELESS
NAT
FIREWALL
» Access Control
» MAC Filter
» URL Blocking
» Schedule Rule
» Intrusion Detection
» DMZ
ROUTE
QoS
ADVANCED
Access Control Add PC
This page allows users to define service limitations of client PCs, including IP address, service type and scheduling rule criteria. For the URL blocking function, you need to configure the URL address first on the "URL Blocking Site" page. For the scheduling function, you also need to configure the schedule rule first on the "Schedule Rule" page.
Client PC Description:
Client PC IP Address:
Client PC Service:
Service Name
Detail Description
Blocking
WWW
HTTP, TCP Port 80, 3128, 8000, 8001, 8080
WWW with URL Blocking
HTTP (Ref. URL Blocking Site Page)
E-mail Sending
SMTP, TCP Port 25
News Forums
NNTP, TCP Port 119
E-mail Receiving
POP3, TCP Port 110
Secure HTTP
HTTPS, TCP Port 443
File Transfer
FTP, TCP Port 21
Telnet Service
TCP Port 23
AIM
AOL Instant Messenger, TCP Port 5190
NetMeeting
H.323, TCP Port 1720, 1503
DNS
UDP Port 53
SNMP
UDP Port 161, 162
VPN-PPTP
TCP Port 1723
VPN-L2TP
UDP Port 1701
TCP
All TCP Port
UDP
All UDP Port
User Define Service
Protocol: TCP UDP
Port Range:
Clear
Scheduling Rule (Ref. Schedule Rule Page):
Always Blocking
OK
Cancel

## 4.8.2 MAC Filter

The SAGEM F@st™ 1500 ADSL Router can also limit the access of hosts within the local area network (LAN). The MAC Filtering Table allows the SAGEM F@st™ 1500 ADSL Router to enter up to 32 MAC addresses that are not allowed access to the WAN port.



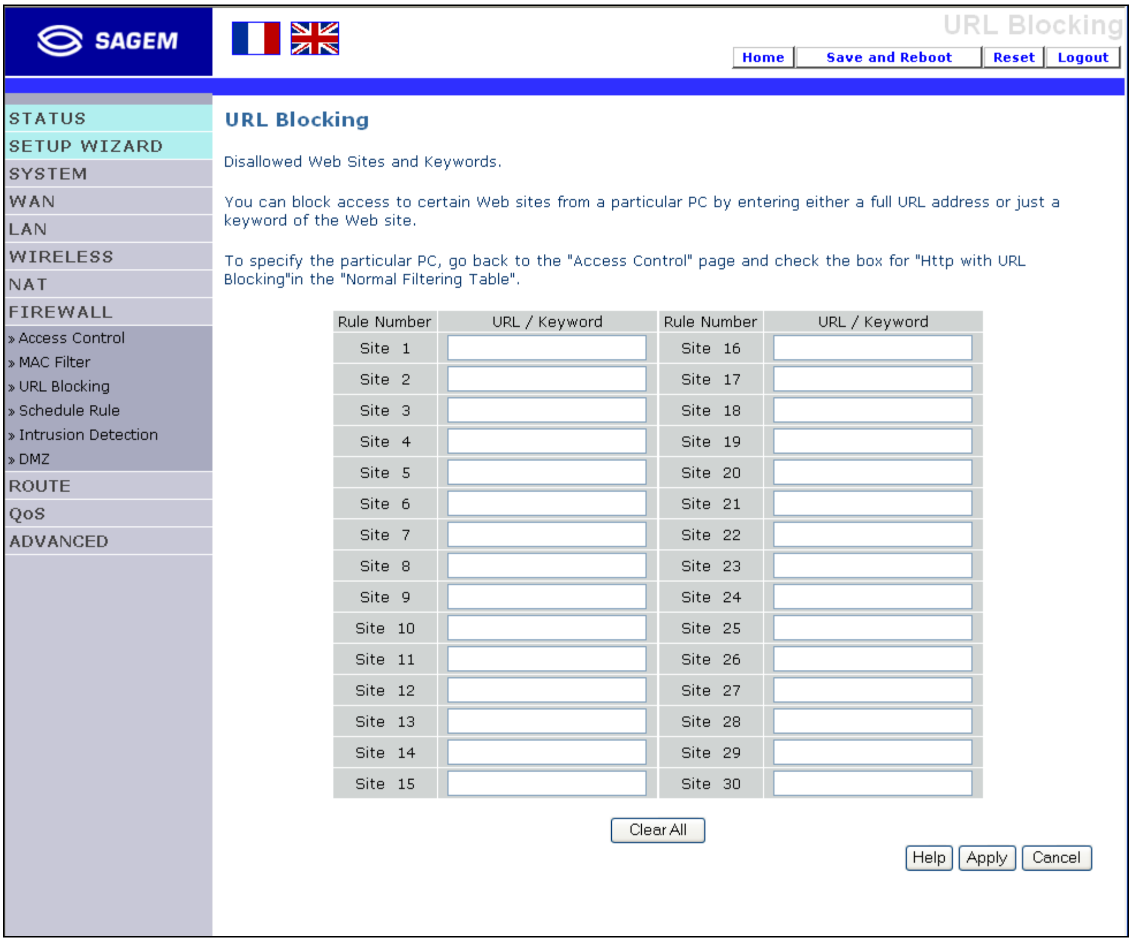

Click **Yes** to enable, or **No** to disable this function.

Enter the MAC address in the space provided.

## 4.8.3 URL Blocking

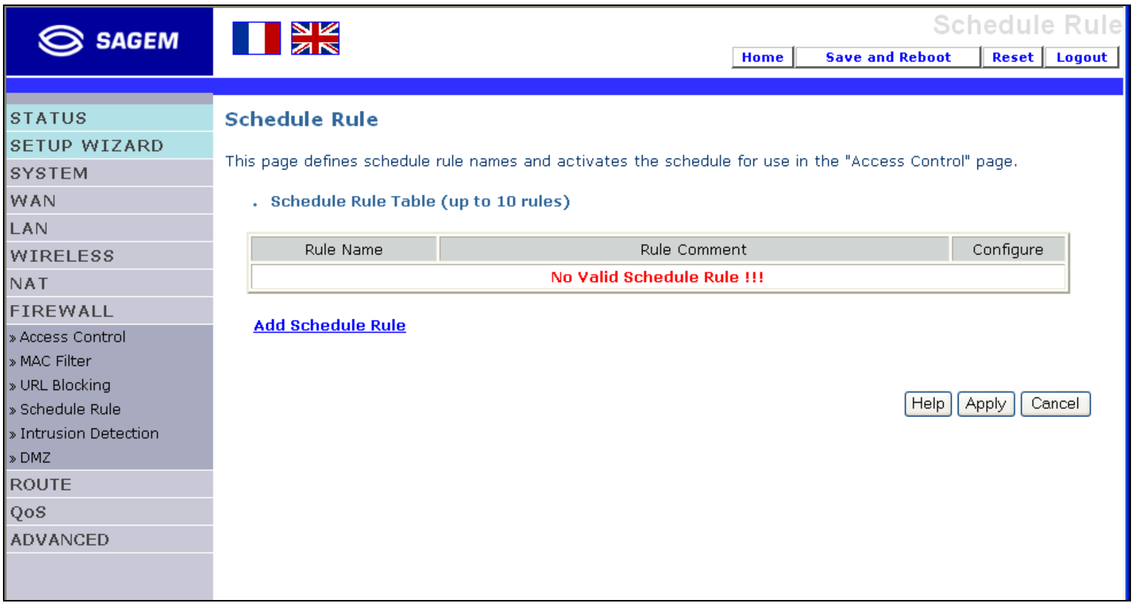
The SAGEM F@st™ 1500 ADSL Router allows the user to block access to web sites from a particular PC by entering either a full URL address or just a keyword. This feature can be used to protect children from accessing violent or pornographic web sites.




You can define up to 30 sites here.

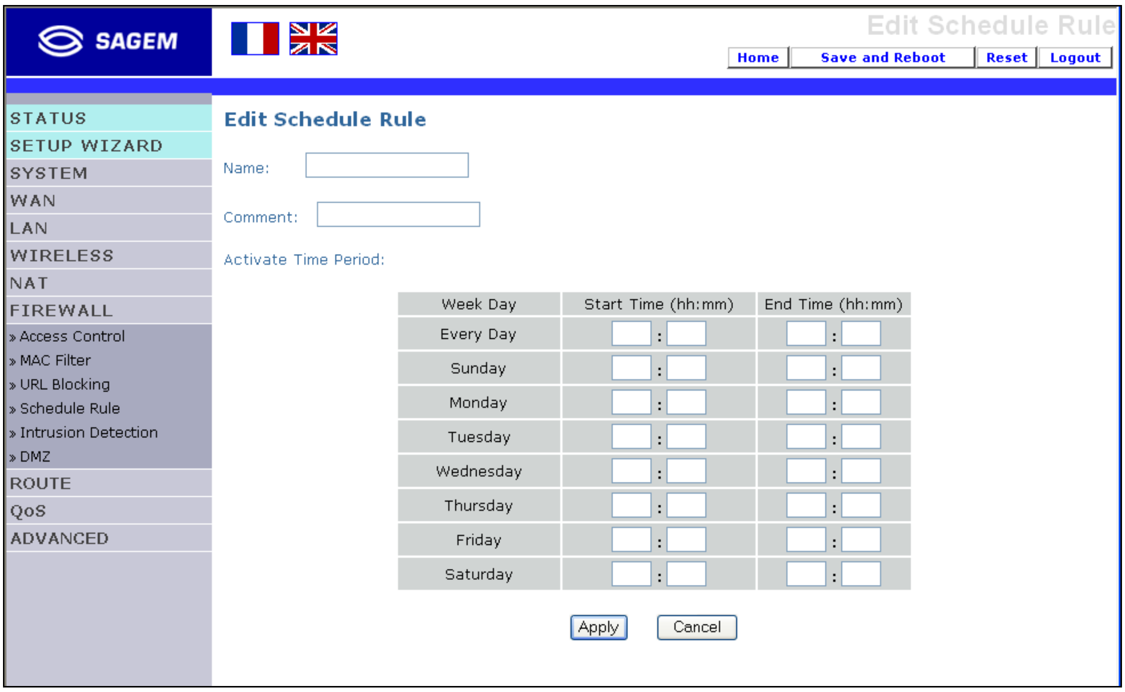
## 4.8.4 Schedule Rule

You may filter Internet access for local clients based on rules. Each access control rule may be activated at a scheduled time. Define the schedule on the Schedule Rule page, and apply the rule on the Access Control page.




Follow these steps to add a schedule rule:

1) Click “**Add Schedule Rule**”.
2) Define the appropriate settings for a schedule rule (as shown in this example).
3) Click “**OK**” and then click “**SAVE SETTINGS**” to save your settings.



## 4.8.5 Intrusion Detection

### 1) Intrusion Detection Feature

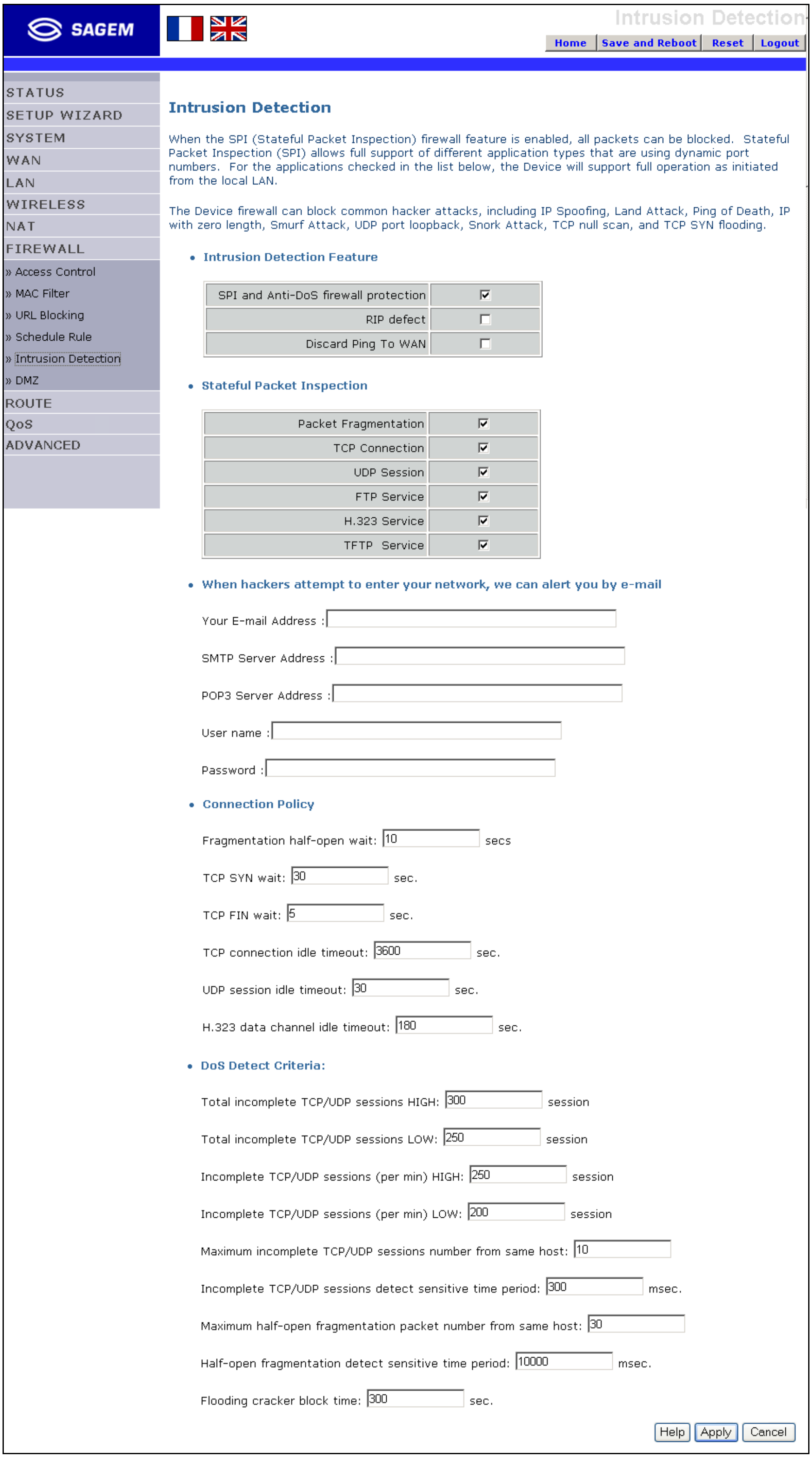
Stateful Packet Inspection (SPI) and Anti-DoS firewall protection (Default: Enabled) - The Intrusion Detection Feature of the SAGEM F@st™ 1500 ADSL Router limits access for incoming traffic at the WAN port. When the SPI feature is turned on, all incoming packets will be blocked except for those types marked in the Stateful Packet Inspection section.

RIP Defect (Default: Enabled) - If an RIP request packet is not acknowledged to by the router, it will stay in the input queue and not be released. Accumulated packets could cause the input queue to fill, causing severe problems for all protocols. Enabling this feature prevents the packets from accumulating.

Discard Ping to WAN (Default: Disabled) - Prevent a ping on the ADSL Router's WAN port from being routed to the network.

### 2) Stateful Packet Inspection

This is called a "stateful" packet inspection because it examines the contents of the packet to determine the state of the communications; i.e., it ensures that the stated destination computer has previously requested the current communication. This is a way of ensuring that all communications are initiated by the recipient computer and are taking place only with sources that are known and trusted from previous interactions. In addition to being more rigorous in their inspection of packets, stateful inspection firewalls also close off ports until connection to the specific port is requested.


SAGEM
Intrusion Detection
Home
Save and Reboot
Reset
Logout
STATUS
SETUP WIZARD
SYSTEM
WAN
LAN
WIRELESS
NAT
FIREWALL
» Access Control
» MAC Filter
» URL Blocking
» Schedule Rule
» Intrusion Detection
» DMZ
ROUTE
QoS
ADVANCED
Intrusion Detection
When the SPI (Stateful Packet Inspection) firewall feature is enabled, all packets can be blocked. Stateful Packet Inspection (SPI) allows full support of different application types that are using dynamic port numbers. For the applications checked in the list below, the Device will support full operation as initiated from the local LAN.
The Device firewall can block common hacker attacks, including IP Spoofing, Land Attack, Ping of Death, IP with zero length, Smurf Attack, UDP port loopback, Snork Attack, TCP null scan, and TCP SYN flooding.
• Intrusion Detection Feature
SPI and Anti-DoS firewall protection
RIP defect
Discard Ping To WAN
• Stateful Packet Inspection
Packet Fragmentation
TCP Connection
UDP Session
FTP Service
H.323 Service
TFTP Service
• When hackers attempt to enter your network, we can alert you by e-mail
Your E-mail Address :
SMTP Server Address :
POP3 Server Address :
User name :
Password :
• Connection Policy
Fragmentation half-open wait: 10 secs
TCP SYN wait: 30 sec.
TCP FIN wait: 5 sec.
TCP connection idle timeout: 3600 sec.
UDP session idle timeout: 30 sec.
H.323 data channel idle timeout: 180 sec.
• DoS Detect Criteria:
Total incomplete TCP/UDP sessions HIGH: 300 session
Total incomplete TCP/UDP sessions LOW: 250 session
Incomplete TCP/UDP sessions (per min) HIGH: 250 session
Incomplete TCP/UDP sessions (per min) LOW: 200 session
Maximum incomplete TCP/UDP sessions number from same host: 10
Incomplete TCP/UDP sessions detect sensitive time period: 300 msec.
Maximum half-open fragmentation packet number from same host: 30
Half-open fragmentation detect sensitive time period: 10000 msec.
Flooding cracker block time: 300 sec.
Help
Apply
Cancel

When particular types of traffic are checked, only the particular type of traffic initiated from the internal LAN will be allowed. For example, if the user only checks "**FTP Service**" in the Stateful Packet Inspection section, all incoming traffic will be blocked except for FTP connections initiated from the local LAN.

Stateful Packet Inspection allows you to select different application types that are using dynamic port numbers. If you wish to use the **S**tateful **P**acket **I**nspection (**SPI**) to block packets, click on the Yes radio button in the "**Enable SPI and Anti-DoS firewall protection**" field and then check the inspection type that you need, such as Packet Fragmentation, TCP Connection, UDP Session, FTP Service, H.323 Service, or TFTP Service.

## 3) When hackers attempt to enter your network, we can alert you by e-mail

Enter your email address.

Specify your SMTP and POP3 servers, user name, and password.

## 4) Connection Policy

Enter the appropriate values for TCP/UDP sessions as described in the following table.

| Parameter | Defaults | Description |
|---|---|---|
| **Fragmentation half-open wait** | 10 sec | Configures the number of seconds that a packet state structure remains active. When the timeout value expires, the router drops the unassembled packet, freeing that structure for use by another packet. |
| **TCP SYN wait** | 30 sec | Defines how long the software will wait for a TCP session to synchronize before dropping the session. |
| **TCP FIN wait** | 5 sec | Specifies how long a TCP session will be maintained after the firewall detects a FIN packet. |
| **TCP connection idle timeout** | 3600 seconds (1 hour) | The length of time for which a TCP session will be managed if there is no activity. |
| **UDP session idle timeout** | 30 sec | The length of time for which a UDP session will be managed if there is no activity. |
| **H.323 data channel idle timeout** | 180 sec | The length of time for which an H.323 session will be managed if there is no activity. |

## 5) DoS Criteria and Port Scan Criteria

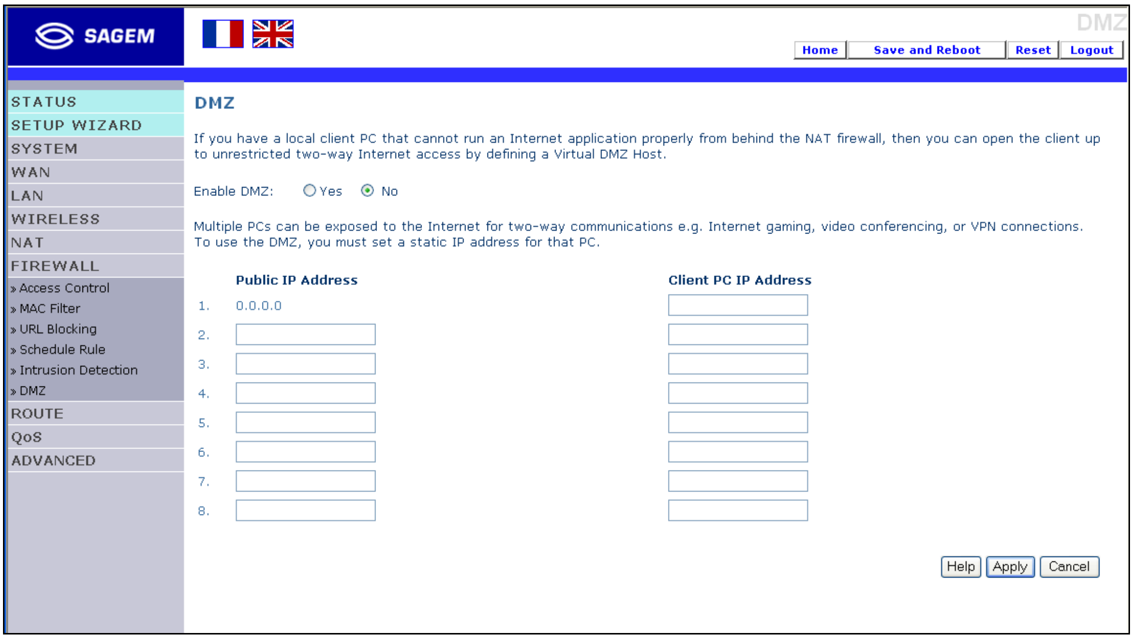
Set up DoS and port scan criteria in the spaces provided (as shown below).
**Note:** The firewall does not significantly affect system performance, so we advise enabling the prevention features to protect your network.

| Parameter | Defaults | Description |
|---|---|---|
| **Total incomplete TCP/UDP sessions HIGH** | 300 sessions | Defines the rate of new unestablished sessions that will cause the software to *start* deleting half-open sessions. |
| **Total incomplete TCP/UDP sessions LOW** | 250 sessions | Defines the rate of new unestablished sessions that will cause the software to *stop* deleting halfopen sessions. |
| **Incomplete TCP/UDP sessions (per min) HIGH** | 250 sessions | Maximum number of allowed incomplete TCP/UDP sessions per minute. |
| **Incomplete TCP/UDP sessions (per min) LOW** | 200 sessions | Minimum number of allowed incomplete TCP/UDP sessions per minute. |
| **Maximum incomplete TCP/UDP sessions number from same host** | 10 | Maximum number of incomplete TCP/UDP sessions from the same host. |
| **Incomplete TCP/UDP sessions detect sensitive time period** | 300 msec | Length of time before an incomplete TCP/UDP session is detected as incomplete. |
| **Maximum half open fragmentation packet number from same host** | 30 | Maximum number of half open fragmentation packets from the same host. |
| **Half-open fragmentation detect sensitive time period** | 10000 msec | Length of time before a half-open fragmentation session is detected as half-open. |
| **Flooding cracker block time** | 300 second | Length of time from detecting a flood attack to blocking the attack. |

### 4.8.6 DMZ

If you have a client computer that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted twoway Internet access. Enter the IP address of a **DMZ** (**D**e**M**ilitarized **Z**one) host on this screen. Adding a client to the **DMZ** may expose your local network to a variety of security risks, so only use this option as a last resort.



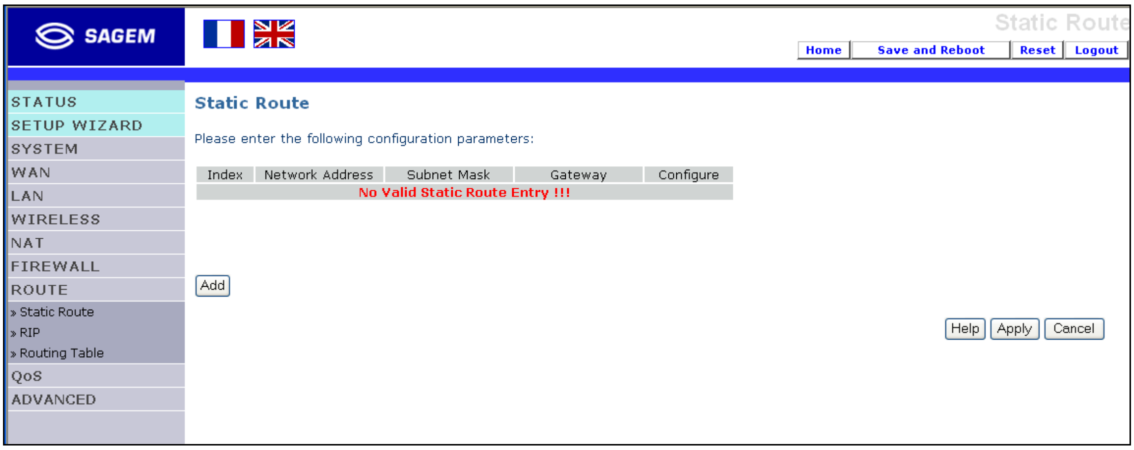
## 4.9 Route

These pages define routing related parameters, including static routes and **RIP** (**R**outing **I**nformation **P**rotocol) parameters.

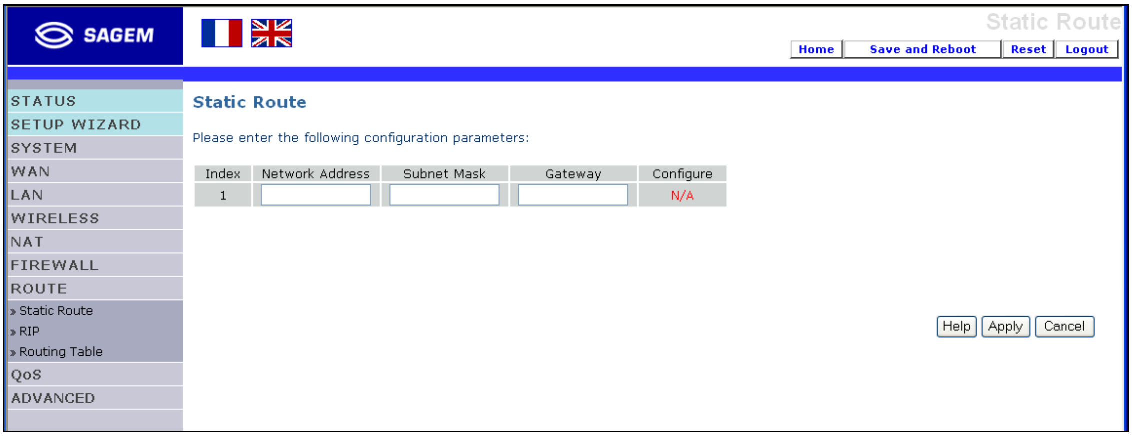
In this menu is included the following sub-menus:

- Static Route (see section 4.9.1),
- RIP (see section 4.9.2),
- Routing Table (see section 4.9.3).

### 4.9.1 Static Route



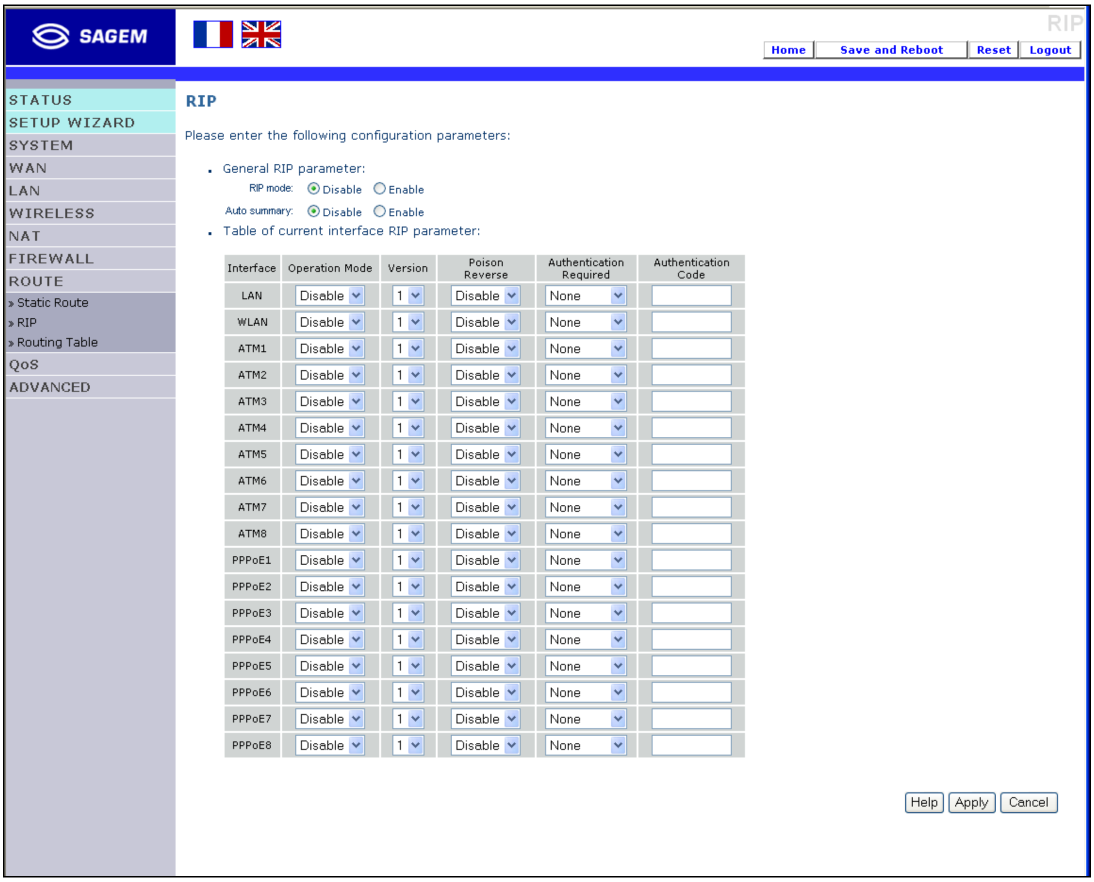

Click “**Add**” to add a new static route to the list, or check the box of an already entered route and click “**Modify**”. Clicking “**Delete**” will remove an entry from the list.




| Parameter | Description |
|---|---|
| **Index** | Check the box of the route you wish to delete or modify. |
| **Network Address** | Enter the IP address of the remote computer for which to set a static route. |
| **Subnet Mask** | Enter the subnet mask of the remote network for which to set a static route. |
| **Gateway** | Enter the WAN IP address of the gateway to the remote network. |

## 4.9.2 RIP

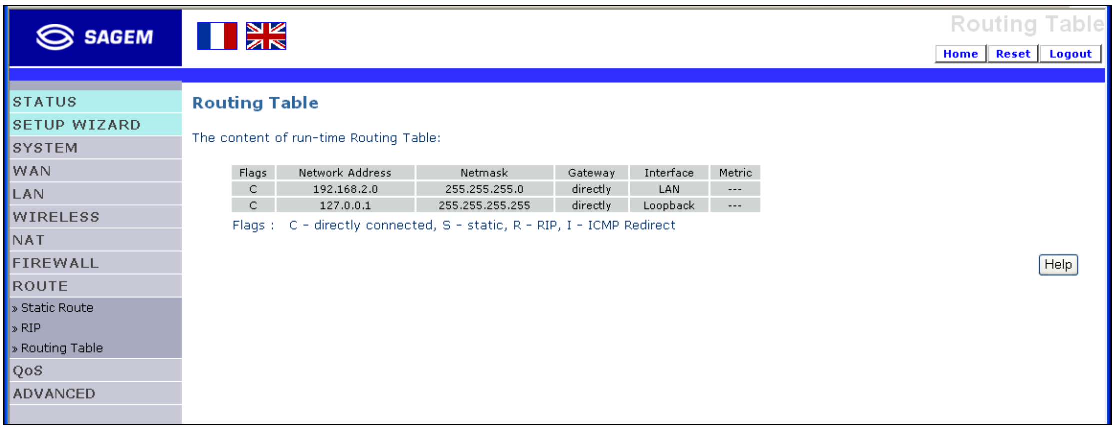

SAGEM
RIP
Home
Save and Reboot
Reset
Logout
STATUS
SETUP WIZARD
SYSTEM
WAN
LAN
WIRELESS
NAT
FIREWALL
ROUTE
» Static Route
» RIP
» Routing Table
QoS
ADVANCED
RIP
Please enter the following configuration parameters:
General RIP parameter:
RIP mode: Disable Enable
Auto summary: Disable Enable
Table of current interface RIP parameter:
Interface
Operation Mode
Version
Poison Reverse
Authentication Required
Authentication Code
LAN
WLAN
ATM1
ATM2
ATM3
ATM4
ATM5
ATM6
ATM7
ATM8
PPPoE1
PPPoE2
PPPoE3
PPPoE4
PPPoE5
PPPoE6
PPPoE7
PPPoE8
Disable
1
None
Help
Apply
Cancel

| Parameter | Description |
|---|---|
| **General RIP Parameters** | |
| **RIP mode** | Globally enables or disables RIP. |
| **Auto summary** | If Auto summary is disabled, then **RIP** packets will include sub-network information from all subnetworks connected to the router. If enabled, this sub-network information will be summarized to one piece of information covering all subnetworks. |
| **Table of current Interface RIP parameter** | |
| **Interface** | The WAN interface to be configured. |
| **Operation Mode** | • **Disable**: RIP disabled on this interface.<br>• **Enable**: RIP enabled on this interface.<br>• **Silent**: Listens for route broadcasts and updates its route table. It does not participate in sending route broadcasts. |
| **Version** | Sets the **RIP** (**R**outing Information **P**rotocol) version to use on this interface. |
| **Poison Reverse** | A method for preventing loops that would cause endless retransmission of data traffic. |
| **Authentication Required** | • None: No authentication.<br>• Password: A password authentication key is included in the packet. If this does not match what is expected, the packet will be discarded. This method provides very little security as it is possible to learn the authentication key by watching RIP packets.<br>• MD5: An algorithm that is used to verify data integrity through the creation of a 128-bit message digest from data input (which may<br>be a message of any length) that is claimed to be as unique to that specific data as a fingerprint is to a specific individual. |
| **Authentication Code** | Password or MD5 Authentication key. |

RIP sends routing-update messages at regular intervals and when the network topology changes. When a router receives a routing update that includes changes to an entry, it updates its routing table to reflect the new route. RIP routers maintain only the best route to a destination. After updating its routing table, the router immediately begins transmitting routing updates to inform other network routers of the change.

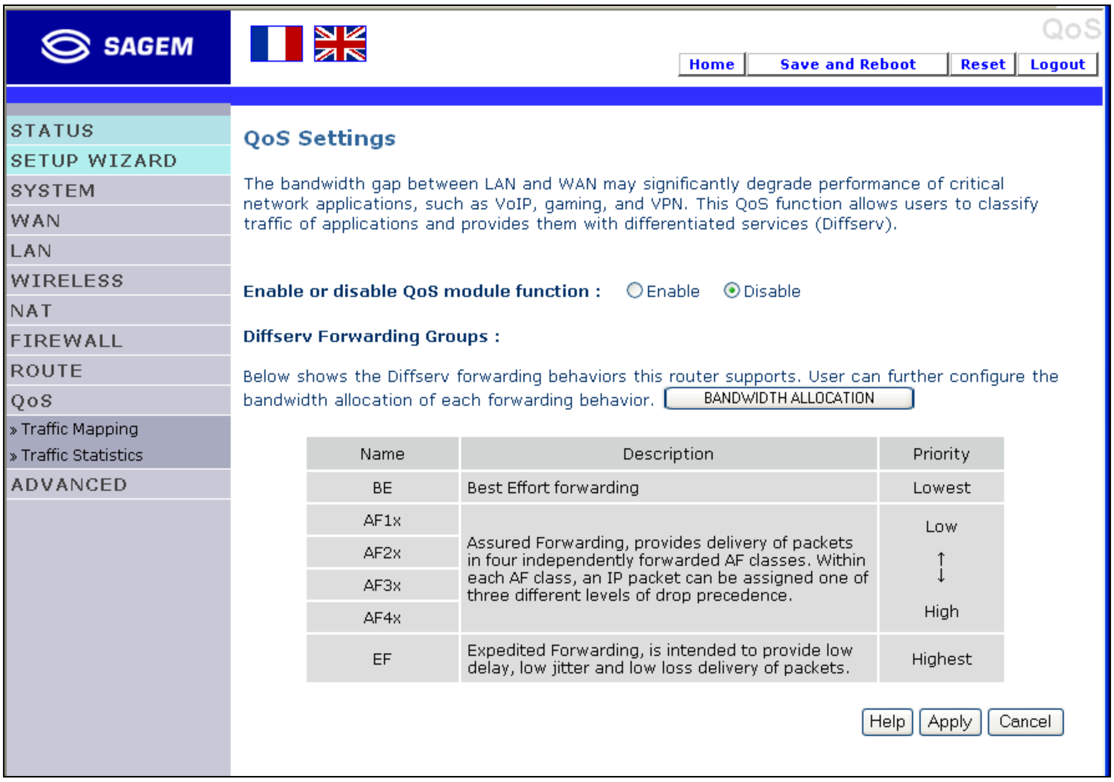
## 4.9.3 Routing Table




| Parameter | Description |
|---|---|
| **Flags** | Indicates the route status:<br>**C** = Direct connection on the same subnet.<br>**S** = Static route.<br>**R** = **R**IP (**R**outing **I**nformation **P**rotocol) assigned route.<br>**I** = **I**CMP (**I**nternet **C**ontrol **M**essage **P**rotocol) Redirect route. |
| **Network Address** | Destination IP address. |
| **Netmask** | The subnetwork associated with the destination.<br>This is a template that identifies the address bits in the destination address used for routing to specific subnets. Each bit that corresponds to a "1" is part of the subnet mask number; each bit that corresponds to "0" is part of the host number. |
| **Gateway** | The IP address of the router at the next hop to which frames are forwarded. |
| **Interface** | The local interface through which the next hop of this route is reached. |
| **Metric** | When a router receives a routing update that contains a new or changed destination network entry, the router adds 1 to the metric value indicated in the update and enters the network in the routing table. |

## 4.10 QoS

The QoS function allows users to classify traffic of applications and provides them differentiated services (Diffserv).

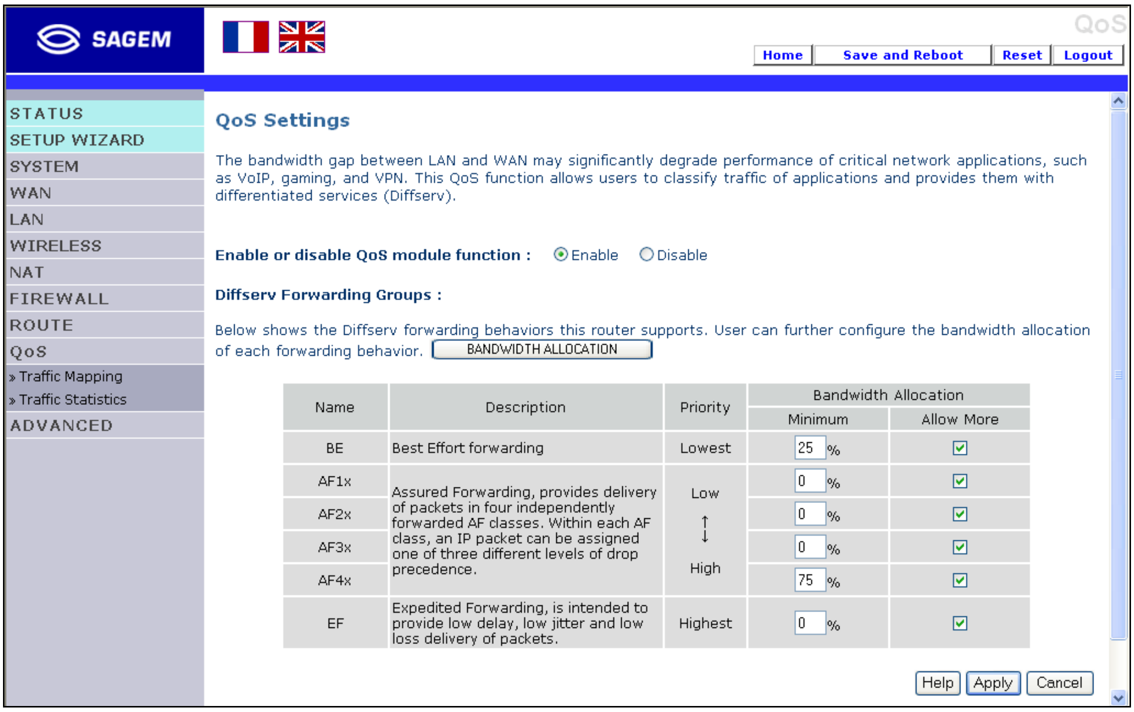



The following items are on the "QoS Settings" screen:

| Parameter | Description |
|---|---|
| **Enable or disable QoS module function** | Click **Enable** to activate QoS module function. |
| BANDWIDTH ALLOCATION | To configure bandwidth Allocation. |

- Click BANDWIDTH ALLOCATION ; the following screen appears :




Allow users to configure guaranteed bandwidth of each Forwarding Group (EF, AF4x to AF1x and BE). The amount of guaranteed bandwidth for the Forwarding Groups must not be over 100%.

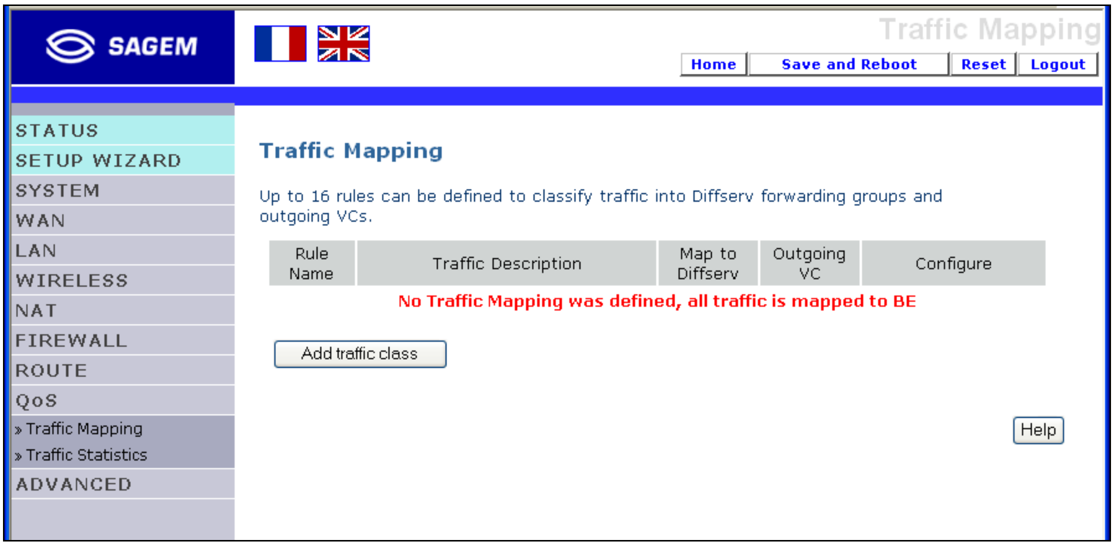
Allow to limit whether or not the guaranteed bandwidth of each Forwarding Group by checking or not the "**Allow More**" box

In this menu are included the following sub-menus:

- Traffic Mapping (see section 4.10.1),
- Traffic statistics (see section 4.10.2).

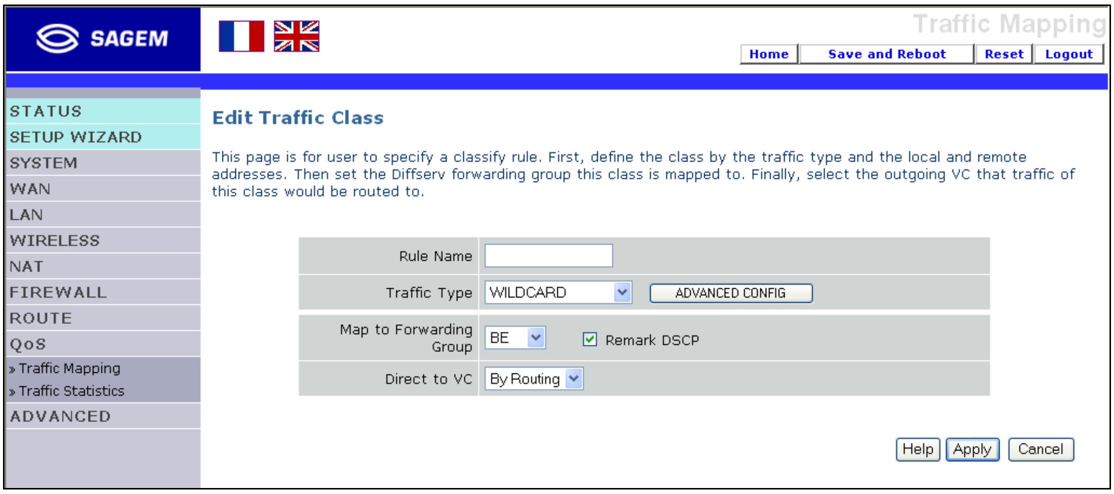

 

## 4.10.1 Traffic Mapping




No traffic Mapping was defined.

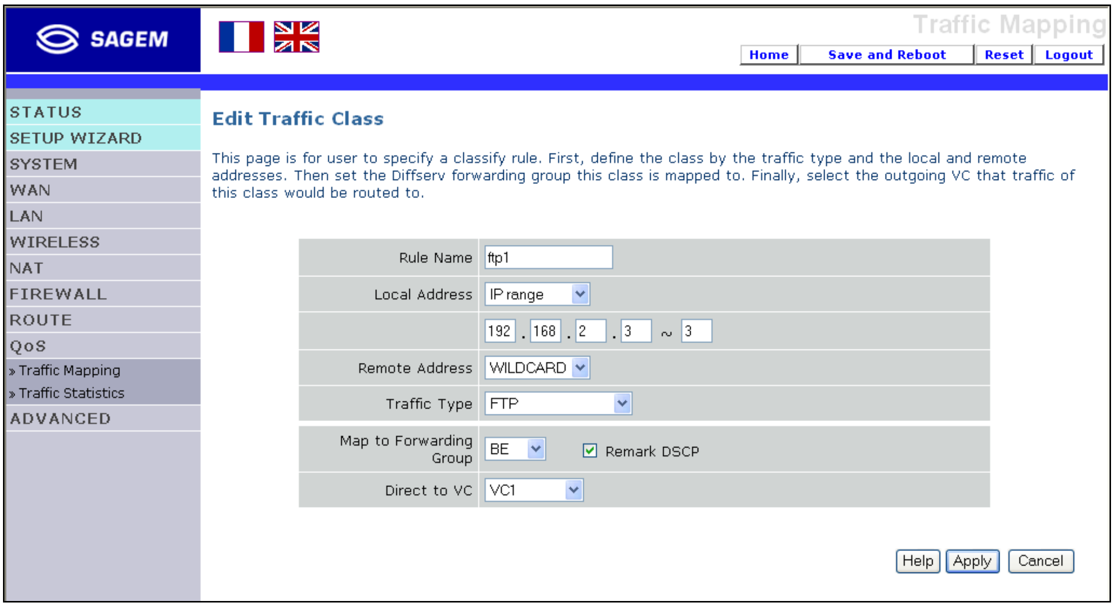
- Click on the [Add traffic class] button to add a traffic class ; the following screen appears:




| Parameter | Description |
|---|---|
| **Rule Name** | Enter a Rule Name. |
| **Traffic Type** | Select **FTP**, **VoIP**, **E-MAIL**, **SNMP**, **TELNET**, **WWW**, **VPN**, **User define - TCP**, **User define - UDP** or **User define - IP**, |
| **Map to forwarding Group** | Select Forwarding Service from th lowest to the highest : **BE** (Best Effort), **AF1x** (Assured Forwarding), **AF2x**, **AF3x**, **AF4x** or **EF** (Expedited Forwarding). |
| **Remark DSCP** | Check the box to change the **DSCP** (Differenciated Service Code Point) field in the "IP header" of each outgoing frame. |
| **Direct to VC** | Select "**By routing**" or "**VCx**" |

- Click on the ADVANCED CONFIG button ; the following screen appears:



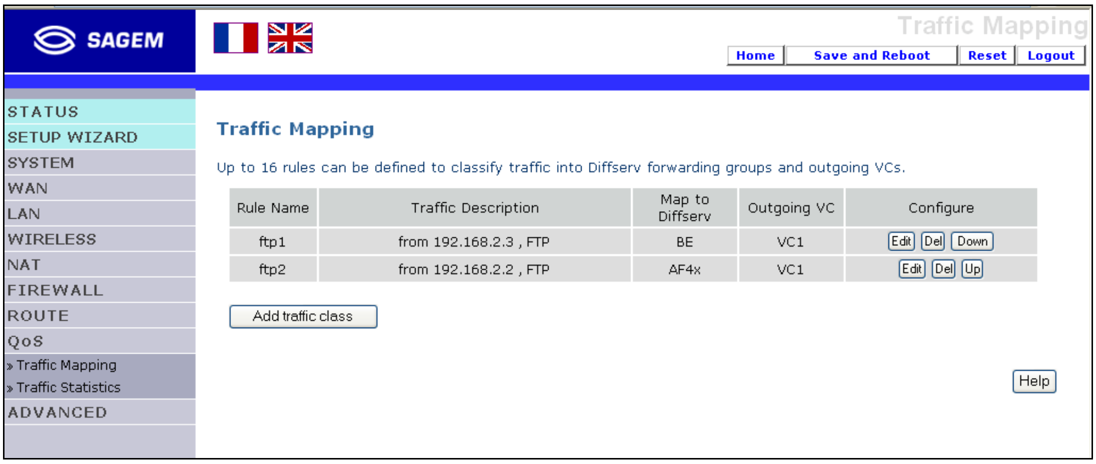

Almost fields are been informed, please inform these last ones:

| Parameter | Description |
|---|---|
| **Local Address** | Select **Mac addr**, **IP range**, **This router** or **ANY**. |
| **Remote Address** | Select **Mac addr**, **IP range**, **This router** or **ANY**. |

In the fields **Local Address** or **Remote Address**, if you choose **Mac addr**, **IP range**, an other screen appears and you may enter the Mac address or a IP address range (or the IP address) on the local or remote part.

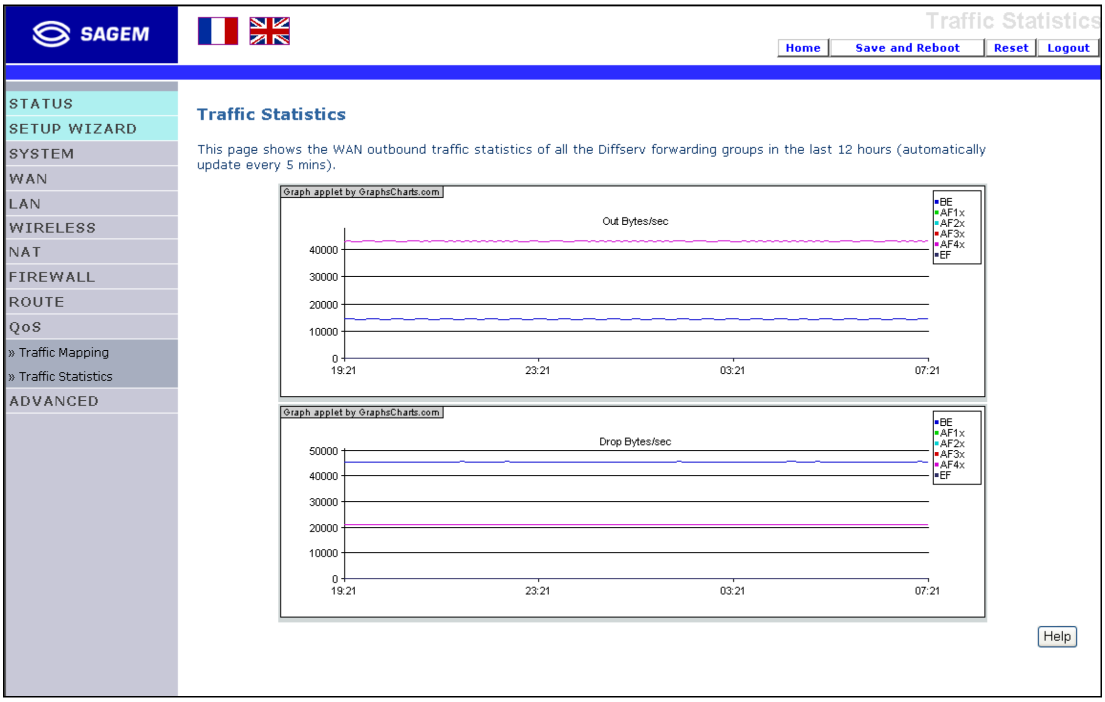
For example, in the screen above IP range has been selected

After having entered several services classes, the following screen appears:



| | |
|---|---|
| Edit | This button allows to modify all parameters of each traffic class. |
| Del | This button allows to delete a traffic class. |
| Up | This button allows to move up the matching priority of the selected rule. |
| Down | This button allows to move down the matching priority of the selected rule. |

## 4.10.2 Traffic statistics



## 4.11 Advanced

In this menu is included the following sub-menus:

- ADSL (see section 4.11.1),
- Remote Management (see section 4.11.2),
- SNMP (see section 4.11.3),
- UPnP (see section 4.11.4).

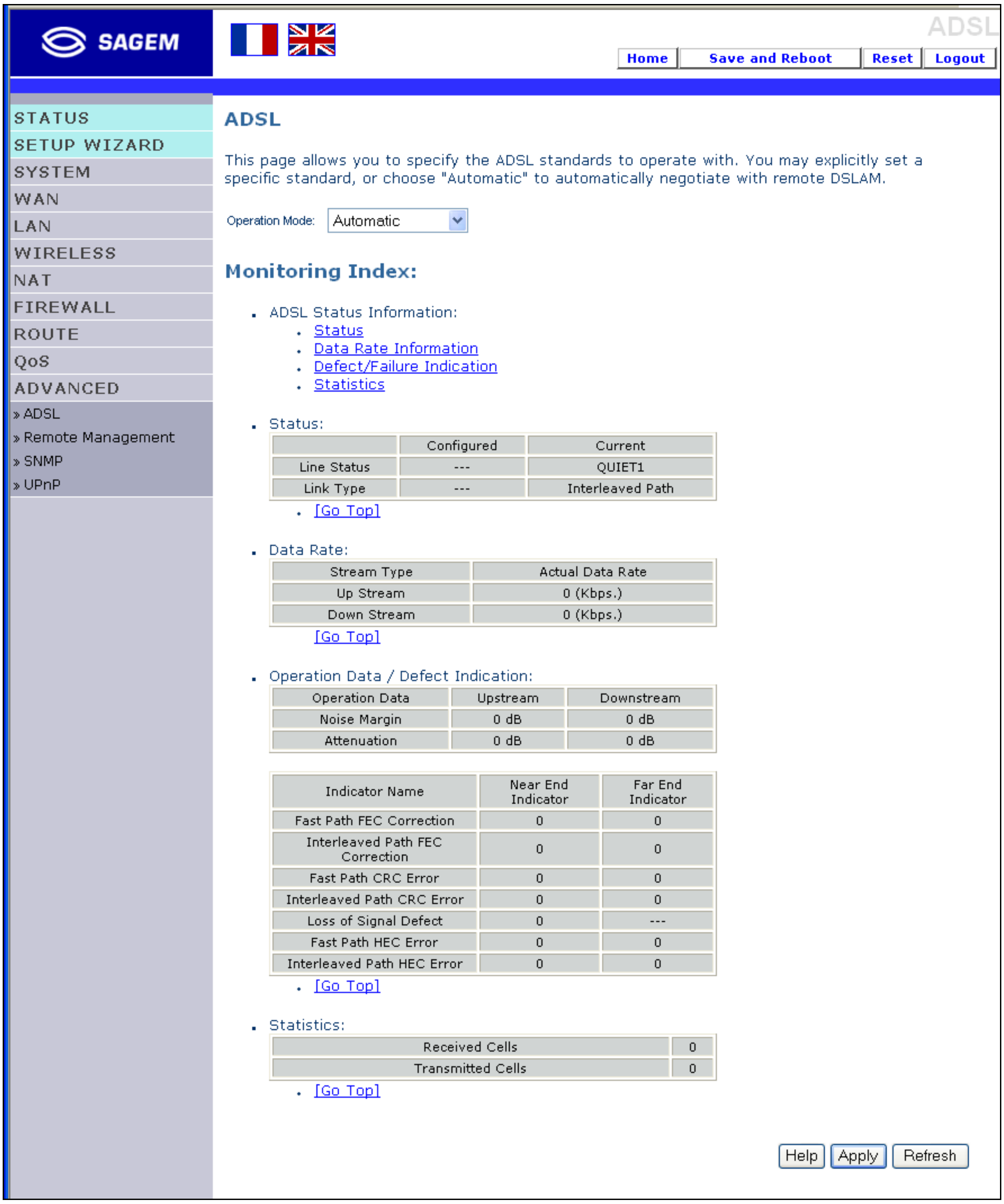
### 4.11.1 ADSL

#### ADSL Status Information

**ADSL** (**A**symmetric **D**igital **S**ubscriber **L**ine) is designed to deliver more bandwidth downstream (from the central office to the customer site) than upstream. This section is used to display the ADSL operation type its status.

## Status

The Status screen displays information on connection line status, data rate, operation data and defect indication, and statistics. Scroll down to view more information.



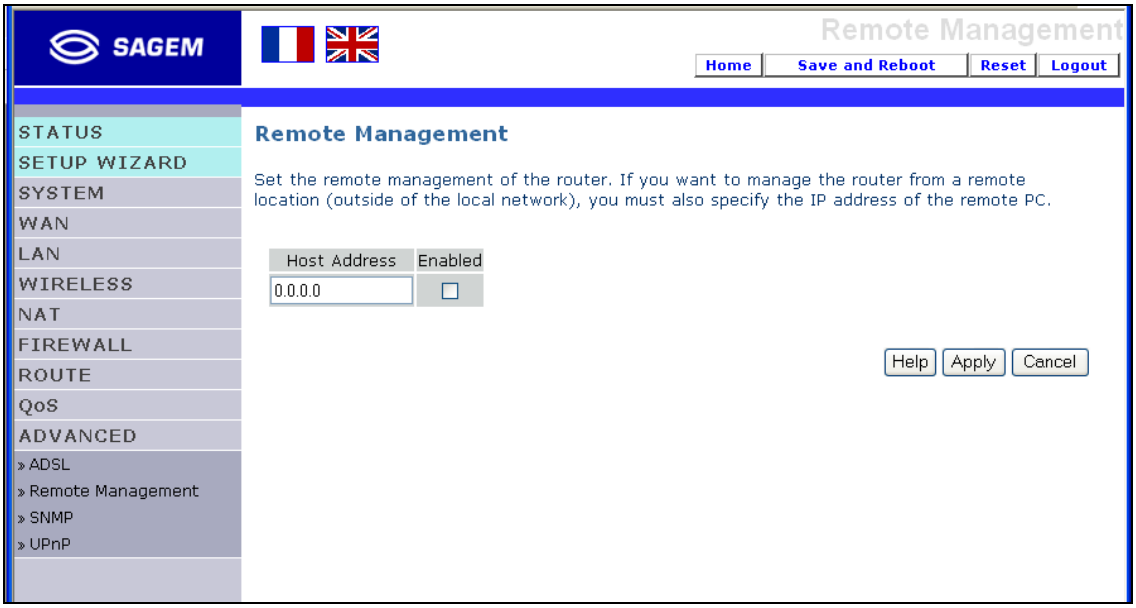

 

The following items are included on this information page:

| Parameter | Description |
|---|---|
| **Status** | |
| **Line Status** | Shows the current status of the ADSL line connection. |
| **Data Rate** | |
| **Upstream** | Maximum upstream data rate. |
| **Downstream** | Maximum downstream data rate. |
| **Operation Data/Defect Indication** | |
| **Noise Margin** | Maximum upstream and downstream noise margin. |
| **Output Power** | Maximum fluctuation in the output power. |
| **Attenuation** | Maximum reduction in the strength of the upstream and downstream signal. |
| **Fast Path FEC Correction** | |
| | There are two latency paths that may be used: fast and interleaved. For either path, a forward error correction (FEC) scheme is employed to ensure higher data integrity. For maximum noise immunity, an interleaver may be used to supplement FEC |
| **Interleaved Path FEC Correction** | |
| | An interleaver is basically a buffer used to introduce a delay, allowing for additional error correction techniques to handle noise. Interleaving slows the data flow and may not be optimal for real-time signals such as video transmission. |
| **Fast Path CRC Error** | |
| | The number of Fast Path Cyclic Redundancy Check errors. |
| **Interleaved Path CRC Error** | |
| | The number of Interleaved Path Cyclic Redundancy Check errors. |
| **Loss of Signal Defect** | |
| | Momentary signal discontinuities. |
| **Loss of Frame Defect** | |
| | Failures due to loss of frames. |
| **Loss of Power Defect** | |
| | Failures due to loss of power. |
| **Fast Path HEC Error** | |
| | Fast Path Header Error Concealment errors. |
| **Interleaved Path HEC Error** | |
| | Interleaved Path Header Error Concealment errors. |
| **Statistics** | |
| | Superframes represent the highest level of data presentation.<br>Each superframe contains regular ADSL frames, one of which is used to provide superframe synchronization, identifying the start of a superframe. Some of the remaining frames are also used for special functions.rs. |
| **Received Superframes Interleaved** | |
| | Number of interleaved superframes received. |
| **Transmitted Superframes Interleaved** | |
| | Number of interleaved superframes transmitted. |
| **Received Superframes Fast** | |
| | Number of fast superframes received |
| **Transmitted Superframes Fast** | |
| | Number of fast superframes transmitted. |

## 4.11.2 Remote Management

By default, management access is only available to users on your local network. However, you can also manage the SAGEM F@st™ 1500 ADSL Router from a remote host by entering the IP address of a remote computer on this screen. Check the Enabled check box, and enter the IP address of the Host Address and click “**Apply**”.




If you check Enable and specify an IP address of 0.0.0.0, any remote host can manage the SAGEM F@st™ 1500 ADSL Router.

For remote management via WAN IP address you need to connect using port 8080. Simply enter WAN IP address followed by :8080, for example,

212.120.68.20:8080.

# 4.11.3 SNMP

Use the SNMP configuration screen to display and modify parameters for the Simple Network Management Protocol (SNMP).




## SNMP Setting

A computer attached to the network, called a **N**etwork **M**anagement **S**tation (**NMS**), can be used to access this information. Access rights to the agent are controlled by community strings. To communicate with the SAGEM F@st™ 1500 ADSL Router, the **NMS** must first submit a valid community string for
authentication.

| Parameter | Description |
|---|---|
| **Community** | A community name authorized for management access. |
| **Access** | Management access is restricted to Read Only (Read) or Read/Write (Write). |
| **Valid** | Enables/disables the entry. |

Up to five community names may be entered.

### SNMP Trap

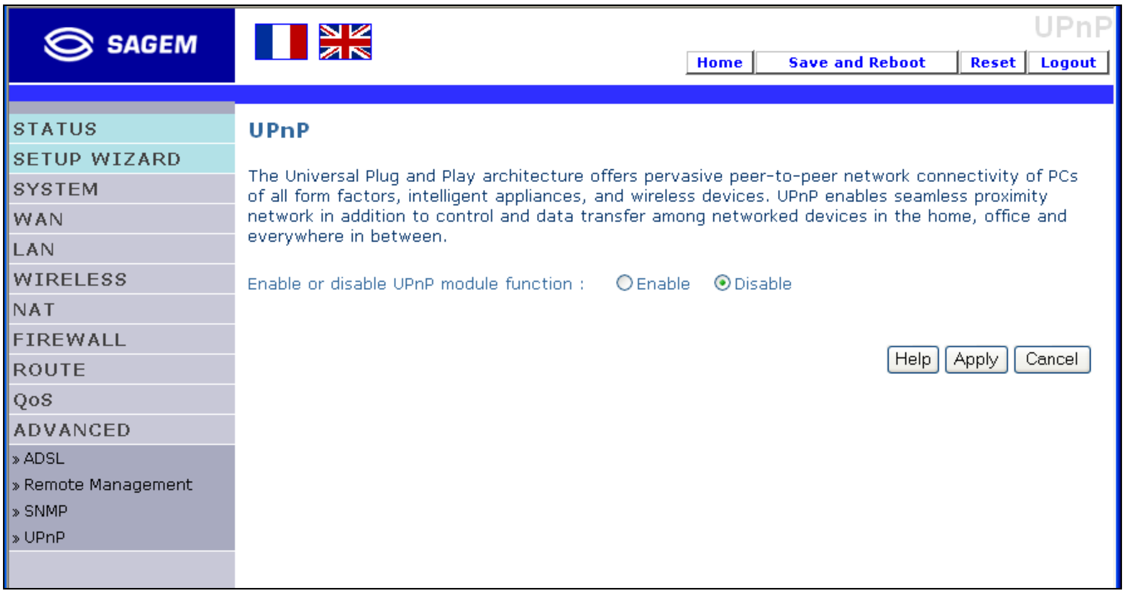
Specify the IP address of the NMS to notify when a significant event is detected by the agent. When a trap condition occurs, the SNMP agent sends an SNMP trap message to any NMS specified as a trap receiver.

| Parameter | Description |
| --- | --- |
| IP Address | Traps are sent to this address when errors or specific events occur on the network. |
| Community | A community string (password) specified for trap management. Enter a word, something other than public or private, to prevent unauthorized individuals from accessing information on your system. |
| Version | Sets the trap status to disabled, or enabled with V1 or V2c.<br>The v2c protocol was proposed in late 1995 and includes enhancements to v1 that are universally accepted. These include a get-bulk command to reduce network management traffic when retrieving a sequence of MIB variables, and a more elaborate set of error codes for improved reporting to a Network Management Station. |

## 4.11.4 UPnP

Click **Enable** to turn on the Universal Plug and Play function of the ADSL Router. This function allows the device to automatically:

- dynamically join a network,
- obtain an IP address.



## 4.12 Finding the MAC address of a Network Card

### Windows 98/ME

Click **Start/Run**. Type “**winipcfg**” and press “**ENTER**”.

The MAC address is in the “**Adapter Address**” section.

### Windows NT4/2000/XP

Click **Start/Programs/Command Prompt**. Type “**ipconfig /all**” and press “**ENTER**”.

The MAC address is listed as the “Physical Address.”

### Macintosh

Click **System Preferences/Network**.

The MAC address is listed as the “**Ethernet Address**” on the TCP/IP tab.

### Linux

Run the command “**/sbin/ifconfig.”**

The MAC address is the value after the word “**HWaddr.**”

# A. Appendix A - Troubleshooting

This section describes common problems you may encounter and possible solutions to them. The SAGEM F@st™ 1500 ADSL Router can be easily monitored through panel indicators to identify problems.

| Troubleshooting Chart | |
|---|---|
| **Symptom** | **Action** |
| **LED Indicators** | |
| The **PWR** LED is **Off**. | • Check connections between the SAGEM F@st™ 1500 ADSL Router, the external power supply, and the wall outlet.<br>• If the power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or external power supply. However, if the unit powers off after running for a while, check for loose power connections, power losses, or surges at the power outlet. If you still cannot isolate the problem, then the external power supply may be defective. In this case, contact Technical Support for assistance. |
| The **ADSL** LED is **Off**. | • Verify that the SAGEM F@st™ 1500 ADSL Router and attached device are powered on.<br>• Be sure the cable is plugged into both the ADSL Router and the corresponding device.<br>• Verify that the proper cable type is used and that its length does not exceed the specified limits.<br>• Be sure that the network interface on the attached device is configured for the proper communication speed and duplex mode.<br>• Check the adapter on the attached device and cable connections for possible defects. Replace any defective adapter or cable if necessary. |
| **Network Connection Problems** | |
| The user cannot ping the SAGEM F@st™ 1500 ADSL Router from the attached LAN. | • Verify that the IP addresses are properly configured. For most applications, you should use the A DSL Router's DHCP function to dynamically assign IP addresses to hosts on the attached LAN. However, if you manually configure IP addresses on the LAN, verify that the same network address (network component of the IP address) and subnet mask are used for both the SAGEM F@st™ 1500 ADSL Router and any attached LAN devices.<br>• Be sure the device you want to ping (or from which you are pinging) has been configured for TCP/IP. |
| **Management Problems** | |
| The user cannot connect using the web browser. | • Be sure to have configured the SAGEM F@st™ 1500 ADSL Router with a valid IP address, subnet mask, and default gateway.<br>• Check that you have a valid network connection to the SAGEM F@st™ 1500 ADSL Router and that the port you are using has not been disabled.<br>• Check the network cabling between the management station and the SAGEM F@st™ 1500 ADSL Router. |
| The user forgot or lost the password. | • Press the Reset button on the rear panel (holding it down for at least five seconds) to restore the factory defaults. |

| Troubleshooting Chart | |
|---|---|
| **Symptom** | **Action** |
| **LED Indicators** | |
| **Wireless Problems** | |
| A wireless PC cannot associate with the ADSL Router. | • Make sure the wireless PC has the same SSID settings as the SAGEM F@st™ 1500 ADSL Router. See “Channel and SSID” on section **4.6.1**.<br>• You need to have the same security settings on the clients and the SAGEM F@st™ 1500 ADSL Router. See “Security” on section **4.6.3**. |
| The wireless network is often interrupted. | • Move your wireless PC closer to the SAGEM F@st™ 1500 ADSL Router to find a better signal. If the signal is still weak, change the angle of the antenna.<br>• There may be interference, possibly caused by a microwave ovens or wireless phones. Change the location of the interference sources or of the ADSL Router.<br>• Change the wireless channel on the SAGEM F@st™ 1500 ADSL Router. See “Channel and SSID” on section **4.6.1**.<br>• Check that the antenna, connectors, and cabling are firmly connected. |
| The SAGEM F@st™ 1500 ADSL Router cannot be detected by a wireless client. | • The distance between the SAGEM F@st™ 1500 ADSL Router and wireless PC is too great.<br>• Make sure the wireless PC has the same SSID and security settings as the SAGEM F@st™ 1500 ADSL Router. See ADSL Router. See “Channel and SSID” **on section 4.6.1** and “Security” on section **4.6.3**. |

# B. Appendix B - Safety warnings

| | | |
|---|---|---|
| This chapter covers | ➢ Safety warnings | Section B.1 |
| | ➢ CE declaration of conformity | Section B.2 |

# B.1 Safety warnings

The SAGEM F@st™ 1500 product is compliant with EN 60950, April 2002 edition.
The safety levels in the sense of this standard are:

## B.1.1 Safety levels on the mains adapter unit

| *Connectors* | *Function* | *Safety level* |
|---|---|---|
| Two-pole mains AC connector | Primary power supply access | HPV[1] |
| Miniature DC socket | DC power supply port | SELV[2] |

## B.1.2 Safety levels on the SAGEM F@st™ 1500 unit

| *Connectors* | *Function* | *Safety level* |
|---|---|---|
| **Power Inlet** | DC power supply port | SELV |
| **LAN Ports** | 10/100BASE-T Ethernet port | SELV |
| **ADSL Port** | ADSL line port | TNV3[3] |

[1] Hazardous Primary Voltage circuit
[2] Safety Extra-Low Voltage circuit
[3] Telecommunication Network Voltage level 3 circuit

## B.2 CE declaration of conformity

Products bearing this symbol are compliant with the EMC regulations and the low voltage directive published by the European Commission.

**SAGEM SA** declares that the *SAGEM F@st™ 1500* product is compliant with the requirements of European Directives 1995/5/CE and the main requirements of directives 89/336/CEE dated 03/05/1989 and 73/23/CEE dated 19/02/1973, and that it effectively uses the spectrum assigned for terrestrial or space radio communications.

The CE declaration of conformity concerning the *SAGEM F@st™ 1500* is drawn up within the context of the R&TTE directive.

Conformity is presumed by full compliance with the harmonized European standards:

### Safety

| | |
|---|---|
| EN 60950 | Ed: 04-2002 |

### EMC

| | |
|---|---|
| EN 55022 | Ed: 09.1998 |
| EN 55024 | Ed: 09.1998 |

### Radio (specific to SAGEM F@st 1500WG)

| | |
|---|---|
| EN 300 328-1 | Ed 12-2001 |
| EN 300 328-2 | Ed 12-2001 |
| EN 301 489-1 | Ed 08-2002 |
| EN 301 489-17 | Ed 08-2002 |
| SAR EN 50371 | (Limits of human exposure to electromagnetic fields) |

The radio frequency bands authorized for wireless transmission in IEEE 802.11b/g depend on national regulations. In most European countries, the authorized channels are channels 1 to 13 (2400 - 2483.5 MHz band):

- In France, for a maximum transmitted power of 100 mW within a building, channels 10 to 13 (2446.5 - 2483.5 MHz band) are authorized throughout the country and channels 1 to 13 (2400 - 2483.5 MHz band) are authorized in 58 departments (decision N° 02-1008 of ART dated 31/10/2002). The list of departments can be viewed on the ART WEB site.

**SAGEM SA** cannot except any liability if current regulations are not observed at the place of installation.

The CE declaration of conformity for the *SAGEM F@st™ 1500* is included in the form of a file with pdf extension in the product delivery CD-ROM.

# C. Appendix C - CABLES

| | | |
|---|---|---|
| This chapter covers | ➢ Ethernet cable | Section C.1 |
| | ➢ ADSL cable | Section C.2 |

# C.1 Ethernet cable

**DO NOT plug** a phone jack connector into any RJ-45 port.

Use only twisted-pair cables with RJ-45 connectors that conform with FCC standards.

## C.1.1 Specifications

| Cable Types and Specifications | | | |
|---|---|---|---|
| **Cable** | **Type** | **Max. Length** | **Connector** |
| 10BASE-T | Cat. 3, 4, 5 100-ohm UTP | 100 m (328 ft) | RJ-45 |
| 100BASE-TX | Cat. 5 100-ohm UTP | 100 m (328 ft) | RJ-45 |

## C.1.2 Wiring Conventions

For Ethernet connections, a twisted-pair cable must have two pairs of wires. Each wire pair is identified by two different colors. For example, one wire might be red and the other, red with white stripes. Also, an RJ-45 connector must be attached to both ends of the cable

Each wire pair must be attached to the RJ-45 connectors in a specific orientation. The following figure illustrates how the pins on an Ethernet RJ-45 connector are numbered. Be sure to hold the connectors in the same orientation when attaching the wires to the pins.

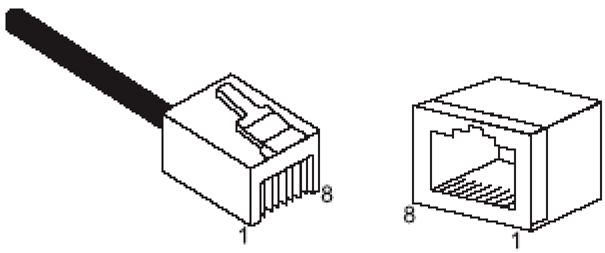



***Figure C.1 - RJ-45 Ethernet Connector Pin Numbers***

## C.1.3 RJ-45 Port Connection

Use the straight-through CAT-5 Ethernet cable provided in the package to connect the Sagem F@st1500 ADSL Router to your PC. When connecting to other network devices such as an Ethernet switch, use the cable type shown in the following table.

| **Attached Device Port Type** | **Connecting Cable Type** |
|---|---|
| MDI-X | Straight-through |
| MDI | Crossover |

## C.1.4 Pin Assignments

### General

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 for receiving data.

| RJ45 Pin Assignments | |
|---|---|
| Pin Number | Assignment1 |
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 6 | Rx- |

The “+” and “-” signs represent the polarity of the wires that make up each wire pair.

### Straight-Through Wiring

If the port on the attached device has internal crossover wiring (MDI-X),
then use straight-through cable.

| Straight Through Cable Pin Assignments | |
|---|---|
| End 1 | End 2 |
| 1 (Tx+) | 1 (Tx+) |
| 2 (Tx-) | 2 (Tx-) |
| 3 (Rx+) | 3 (Rx+) |
| 6 (Rx-) | 6 (Rx-) |

### Crossover Wiring

If the port on the attached device has straight-through wiring (MDI), use crossover cable.

| Crossover Cable Pin Assignments | |
|---|---|
| End 1 | End 2 |
| 1 (Tx+) | 1 (Rx+) |
| 2 (Tx-) | 2 (Rx-) |
| 3 (Rx+) | 3 (Tx+) |
| 6 (Rx-) | 6 (Tx-) |

## C.2 ADSL Cable

Use standard telephone cable to connect the RJ-11 telephone wall outlet to the RJ-45 ADSL port on the Sagem F@st1500 ADSL Router.

**DO NOT plug** a phone jack connector into any RJ-45 port.

### C.2.1 Specifications

| Cable Types and Specifications | | |
|---|---|---|
| **Cable** | **Type** | **Connector** |
| ADSL | Line Standard | Telephone cable RJ11 |

## C.2.2 Wiring Conventions

For ADSL connections, a cable requires one pair of wires. Each wire is identified by different colors. For example, one wire might be red and the other, red with white stripes. Also, an RJ-11 connector must be attached to both ends of the cable.

Each wire pair must be attached to the RJ-11 connectors in a specific orientation. The following figure illustrates how the pins on the RJ-11 connector are numbered. Be sure to hold the connectors in the same orientation when attaching the wires to the pins.

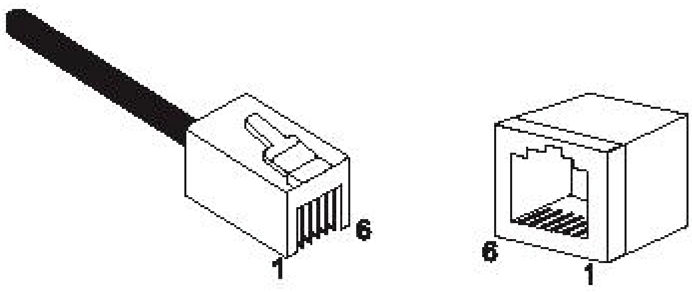



*Figure C.2 - RJ-11 Connector Pin Numbers*

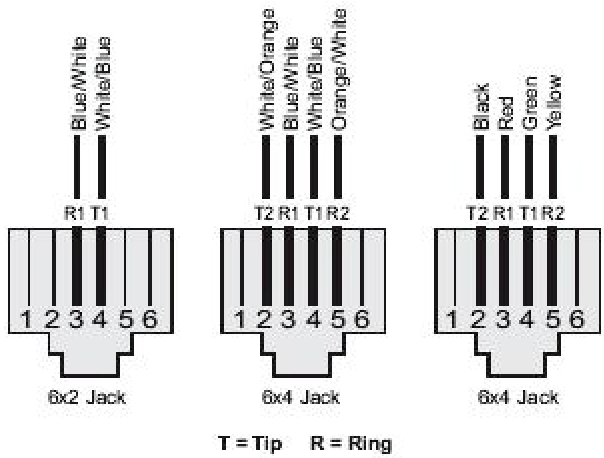



*Figure C.3 - RJ-11 Pinouts*

| Pin | Signal Name | Wire Color |
|---|---|---|
| **1** | Not used | _ |
| **2** | Line 2 Tip | Black or White/Orange |
| **3** | Line 1 Ring | Red or Blue/White |
| **4** | Line 1Tip | Green or White/Blue |
| **5** | Line 2 Ring | Yellow or Orange/White |
| **6** | Not used | _ |

# D. Appendix D - Technical specifications

| | | |
|---|---|---|
| This chapter covers | ➢ the Mechanical Characteristics - Displays | Section D.1 |
| | ➢ the Electrical Characteristics | Section D.2 |
| | ➢ the Soft Component Features | Section D.3 |
| | ➢ the Radio Features | Section D.4 |
| | ➢ the Environmental characteristics | Section D.5 |

## D.1 Mechanical Characteristics - Displays

| **Mechanical specifications** | | |
|---|---|---|
| Dimensions (mm) | • Height without antenna | : 35 mm |
| | • Height with antenna | : 100 mm |
| | • Depth with cable guide | : 140 mm |
| | • Width of stand | : 170 mm |
| Weight (without mains adapter) | • Unit with stand | : 400 g |
| Weight (without mains adapter) | • Mains unit | : 580 g |
| Installation | • Desktop | |

| **Displays** | |
|---|---|
| 1 LED | • Presence of power supply (PWR) |
| 1 LED | • ADSL interface set up (ADSL) |
| 1 LED | • WLAN 802.11b/g (WLAN) |
| 1 LED | • Alarm Detection (ALM) |
| 4 LEDs | • Ethernet activity (ETHERNET) |

| **Ports** |
|---|
| • Four ports 10 / 100 bps - RJ45 (LAN1 to LAN4) |
| • One port ADSL - RJ11 (ADSL) |
| • One Type 2 Europlug socket (Power) |
| • One external dipole antenna |

## D.2 Electrical Characteristics

### ADSL Features

Supports DMT line modulation,

Supports Annex A Full-Rate ADSL: up to 8 Mbps downstream, up to 1 Mbps upstream (G.992.1 &T1.413, Issue 2),

Supports G.Lite ADSL: up to 1.5 Mbps downstream, up to 512 Kbps Upstream,

Dying GASP support.

### Input Power

12 V / 1 A.

## D.3 Soft Component Features

### ATM Features

RFC1483 Encapsulation (IP, Bridging and encapsulated routing),

PPP over ATM (LLC &VC multiplexing) (RFC2364),

Classical IP (RFC1577),

Traffic shaping (UBR, CBR),

OAM F4/F5 support,

PPP over Ethernet Client.

### Management Features

Firmware upgrade via web based management,

Web based management (configuration),

Power indicators,

Event and history logging,

Network ping.

### Security Features

Password protected configuration access,

User authentication (PAP/CHAP) with PP,

Firewall NAT NAPT,

VPN pass through (IPSec-ESP Tunnel mode,L2TP, PPTP).

### LAN Features

IEEE 802.1d (self-learning transparent Bridging),

DHCP Server,

DNS Proxy,

Static Routing, RIPv1 and RIP.

### QoS Features

Diffserv (RFC 2475),

Diffserv PHBs : BE, AF1x, AF1x, AF1x, AF1x and EF,

Diffserv code point (DSC) remarking,

Layer 2/3 Multi-field Classification,

Application Layer Classification.

### Applications

Netmeeting, ICQ, Real Player, QuickTime, DialPad, PC Anywhere, Telnet, SNTP, NNTP.

## D.4 Radio Features

### Wireless RF module Frequency Band

802.11g Radio: 2.4GHz.

802.11b Radio: 2.4GHz.

***USA - FCC***

2412 to 2462 MHz (Ch1 to Ch11).

***Canada - IC***

2412 to 2462 MHz (Ch1 to Ch11).

***Europe - ETSI***

2412 to 2472 MHz (Ch1 to Ch13).

***Spain***

2457 to 2462 MHz (Ch10 et Ch11).

***France***

2457 to 2472 MHz (Ch10 to Ch13).

***Japan - STD-T66/STD-33***

2412 to 2484 MHz (Ch1 to Ch14).

### Modulation Type

OFDM, CCK.

### Operating Channels IEEE 802.11b compliant:

11 channels (US, Canada),

13 channels (ETSI),

2 Channels (Spain),

4 Channels (France),

14 channels (Japan).

### Operating Channels IEEE 802.11g compliant:

13 channels (US, Canada, Europe, Japan).

## RF Output Power Modulation Rate-Output Power (dBm)

802.11b - 1Mbps (16 dBm),

802.11b - 2Mbps (16 dBm),

802.11b - 5.5Mbps (16 dBm,)

802.11b - 11Mbps (16 dBm).

## Modulation Rate-Output Power (dBm)

802.11g - 6Mbps (15 dBm),

802.11g - 9Mbps (15 dBm),

802.11g - 12Mbps (15 dBm),

802.11g - 18Mbps (15 dBm),

802.11g- 24Mbps (15 dBm),

802.11g - 36Mbps (15 dBm),

802.11g- 48Mbps (15 dBm),

802.11g - 54Mbps (15 dBm).

## Sensitivity Modulation Rate-Receiver 2.412 ~ 2.484 HGz Sensitivity (dBm)

802.11b - 1Mbps - (90 dBm),

802.11b - 2Mbps - (88 dBm),

802.11b - 5.5Mbps - (85 dBm),

802.11b- 11Mbps - (84 dBm).

## Modulation Rate-Receiver Sensitivity Typical (dBm)

802.11g - 6Mbps - (88 dBm),

802.11g - 9Mbps - (87 dBm),

802.11g - 12Mbps - (84 dBm),

802.11g - 18Mbps - (82 dBm),

802.11g - 24Mbps - (79 dBm),

802.11g - 36Mbps - (75 dBm),

802.11g - 48Mbps - (68 dBm),

802.11g - 54Mbps - (68 dBm).

## D.5 Environmental characteristics

SAGEM F@st$^{TM}$ 1500WG complies with the following standards:

### Temperature: IEC 68-2-14

0 to 50 degrees C (Standard Operating),

-40 to 70 degrees C (Non-operation).

### Humidity

10% to 90% (Non-condensing).

### Vibration

IEC 68-2-36, IEC 68-2-6.

### Shock

IEC 68-2-29.

### Drop

IEC 68-2-32.

### IEEE Standards

IEEE 802.3, 802.3u, 802.11g, 802.1d,

ITU G.dmt,

ITU G.Handshake,

ITU T.413 issue 2 - ADSL full rate.

### Standards Conformance Electromagnetic Compatibility

CE, ETSI, R&TTE, FCC part 15 class B & FCC part 68, ETS 300 328,
ETS 300 826.

### Safety

CSA/NRTL (UL1950, CSA 22.2.950) GS (EN60950), CB (IEC60950), ITU K21.

## Internet Standards

RFC 826 ARP,

RFC 791 IP,

RFC 792 ICMP,

RFC 768 UDP,

RFC 793 TCP,

RFC 783 TFTP,

RFC 1483 AAL5 Encapsulation,

RFC 1661 PPP,

RFC 1866 HTML,

RFC 2068 HTTP,

RFC 2364 PPP over ATM.

# E. Appendix E - Default configuration

| | | |
|---|---|---|
| This chapter covers | ➢ the default user name and password | Section E.1 |
| | ➢ the default configuration on the local area network side | Section E.2 |
| | ➢ the default configuration on the wide area network side | Section E.3 |

This section gives the default factory settings for the SAGEM F@st™ 1500. The SAGEM F@st™ 1500 is set to "Router" mode by default.

These default settings can be modified by a special pre-configuration of the SAGEM F@st™ 1500.

## E.1 Default user name and password

| | |
|---|---|
| Password | **Empty** |

## E.2 Default configuration on the local area network side

| LAN characteristics | Function - Mode | State/Value |
|---|---|---|
| IP characteristics | IP address | 192.168.2.1 |
| | Mask | 255.255.255.0 |
| | BROADCAST, ARP, MULTICAST | Enabled |
| IP - SERVICES | RIP | Disabled |
| | DHCP server activated on the LAN | 192.168.2.2 to 192.168.2.254 |
| "Wireless" characteristics<br>Only<br>SAGEM F@st™ 1500WG | SSID broadcasting | Enabled |
| | ESSID | "SAGEM" |
| | Channel | 6 (when channels 1 to 13) |
| | | 10 (when channels 10 to 13) |
| | WEP | Enabled |
| | Keys | 64 bits / Hex / Key1 (01/01/01/01/01) |

## E.3 Default configuration on the wide area network side

| WAN characteristics | Function - Mode | State/Value |
|---|---|---|
| ATM characteristics | Protocol | IP/PPP/ATM |
| | VPI | 8 |
| | VCI | 35 |
| | Encapsulation | VC MUX |
| | CLASS | Traffic-type CBR<br>PCR 800 000 bit/s |
| | NAT | Enabled |
| | Default route | ADSL interface address |
| | DNS relay | Enabled |
| | Firewall | Enabled |
| | Intrusion detection | Disabled |
| | OAM F4 and F5 (see Note) | Enabled |

**Note:** The OAM functions provided are as follows:

- Segment and end-to-end flow F4 and F5 management by VC.
- AIS/RDI functions.
- Response to loopback cells F4 or F5.
- Response to continuity check (CC) enable/disable cells.

| | | |
|---|---|---|
| PPP characteristics | IP address | Automatic negotiation |
| | MTU | 1500 |
| | PPP restart | Enabled |
| Management | Access | Disabled |
| ADSL characteristics | Maximum upstream rate | 896 kbit/s |
| | Maximum downstream rate | 8160 kbit/s |
| | Mode | Multimode |
| | Latency | Simple latency (fast or interleaved) |

**Note:** The user can revert to the default configuration via the HTTP interface.

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